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MANCHURIA

BRITISH CONSULATE AT NEWCHWANG

MANCHURIA

'S PEOPLE, RESOURCES AND RECENT HISTORY

BY

ALEXANDER HOSIE, M.A., F.R.G.S.

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WITH MAP, DIAGRAMS AND ILLUSTRATIONS

NEW YORK

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PREFACE

THE writer was in charge of the British Consulate at Newchwang in Manchuria, a ntry whose western frontier touches the Northern inese province of Chihli and Mongolia, from vember, 1894, to July, 1897, and from April, 9, to April, 1900, and the following pages are, st of them, the work of leisure moments snatched m a busy official life. In 1896 he had to visit capital of Kirin, the central province, and, urning to England on furlough in summer of present year, he journeyed along the eastern d northern frontiers of Manchuria to join the erian Railway at Stretensk. The first four apters contain an account of these journeys and istory of important events that have recently urred in this part of the Empire of China, while remaining chapters are devoted to a study of country, its people, products, industries and de. They make no claim to be a complete dy of the fatherland of the Manchu dynasty; they have entailed an amount of labour and

research altogether incommensurate with the results. Chapter VII may be cited as an instance. There is not a single product of the country mentioned therein which has not passed under the writer's eye, and the industries connected with many of these products necessitated frequent visits to the establishments and factories where they are carried on. In the one or two cases in which difficulties presented themselves experts were consulted, and the writer takes this opportunity of expressing his indebtedness for the assistance which they so willingly and efficiently rendered.

Few books on Manchuria have been consulted, because there are few to consult. Where, however, the statements or opinions of others are quoted, credit is given to the authors in the body of the work.

There is no good English map of the whole of Manchuria, and the author has been compelled to have recourse to Russian sources for a basis on which to construct the map which accompanies this book.

A. H.

ABERDEEN, *December*, 1900.

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CHAPTER I.

A JOURNEY INTO CENTRAL MANCHURIA

ON the 28th of December, 1895, I received telegraphic instructions to proceed to Kirin, the capital of the Central province of Manchuria, to settle a long-standing missionary land case, and at 4.30 A.M. on the 2nd January, 1896, my little caravan passed through the gates of the British Consulate at Newchwang bound northwards. The town of Niu-chuang, where one of the very few fierce struggles between the Japanese and Chinese during the late war took place, lies thirty miles inland, and the fact that the port and this inland town are indiscriminately called Newchwang gave rise to considerable confusion as to the military operations during the winter of 1894-95. In the interior of Manchuria the port is spoken of as Ying-tzŭ, or more generally Ying-kow; but as outside Manchuria it is known only as Newchwang I shall continue to name it so, and always refer to the inland town as Niu-chuang. The caravan consisted of four carts—one for Lieutenant Quayle, R.N., of H.M.S. *Rattler*, who was good enough to be my companion; one for my Chinese writer; one for provisions; and the fourth for myself. In addition to these we had three ponies to vary the monotony of cart travelling; but the weather was so cold that we rarely summoned up courage to ride. An official messenger, a cook, a horse-boy, my writer's servant, the four carters, and twelve mules and ponies completed the caravan. We were provisioned for a month, and provided with fur-lined clothing

and boots and fur rugs to enable us to withstand the rigours of a Manchurian winter. These precautions were very necessary, for during the journey we experienced a temperature of 34° below zero, or 66° of frost. Mr. Quayle had a sextant, with the usual accompaniments, and a fowling-piece which on the only occasion on which it was really required—to resist an attack by mounted robbers—could not be unearthed from its case, the lock having got jammed by the jolting of the cart in which it was stowed away, and we each carried a revolver, and last, but not least, I had packed away in my cart an old battered iron despatch box—the trusty companion of my travels in Western China—filled with the more peaceful munitions of travel—broken silver ingots of various sizes, the only universal currency excepting copper cash in China.

As readers of this book may not be familiar with a Chinese passenger cart,—and in this they are extremely fortunate,—I may as well give a brief description of it and of the method of travel. Two stout planks of elm are joined together by cross-pieces of the same wood, the shafts measuring four feet ten inches long and two feet ten inches apart. Behind the shafts comes the driver's seat, some seventeen inches wide, extending across the cart and forming part of the bottom, which runs backwards for four feet two inches and is followed by a framework, twenty-one inches long, utilised for the stowage of baggage. The part between the driver's seat and the rear framework is covered with lattice woodwork arched at the top and about three feet eight inches high, and over the whole of the latter is spread blue native cloth, the interior in winter being lined with cheap fur. In front there is a curtain which may be raised or closed at pleasure, with a small pane of glass in the centre, and there is a window of similar dimensions in each side of the cart. Firmly attached to the bottom is a massive axle-tree and two wheels, four feet in diameter, each

h sixteen spokes, kept in positi steel linch-pins. The , which is of iron half an inch t , consists of eight pieces ches inches long and frequently so knotted as to resemble g-wheel nailed on to the rim, which is one and a half inches h. The cart, therefore, has no springs, and the jolting and ping can be more readily imagined than described. To ate this as much as possible cushions and mattresses are ed; but even these get displaced and require constant ation. I found that I had a low easy arm-chair, which tly fitted the breadth of the interior of the cart, and on chair I sat for the greater part of the twenty-three days nights of travel. Even this had its drawbacks, for, as I not the advantage of being short, my feet projected on to driver's seat, and, although cased in fur-lined boots and ed with fur and other rugs, they were always excessively during the night and early morning. The very first ng the driver happened by accident to sit on one of my , and, finding that he imparted warmth, I edged in the r, and not unfrequently afterwards did I adopt the same n. Owing to the number of garments which he wore, he not inconvenienced—at least he made no complaint, and s a decided gainer. Another discomfort was from our staches, which were frozen at least a dozen times daily from t till sunrise, as well as towards sunset. The process of ng the lumps of ice which clung to them was very painful, if I tried to avoid the cold by burying my face in my fur . I found that my moustache was invariably frozen to the llar. Better the ice than this! I am giving a few of the nforts now, and I am sorry to say that I cannot mention comforts to counterbalance them, and this for a very simple n—there were none!

The great trade highway from Newchwang to Central and hern Manchuria passes through the inland town of Niu-

chuang, and thence goes north-east to Liao-yang Chou and onwards to Moukden or Shên-yang, the capital of the southern province of Manchuria. It does not touch Hai-ch'êng; but, as that district city played a very important part in the war between China and Japan, I determined to visit it on my way to Kirin. On the ten miles of the highway between the port and Shih-ch'iao-tzŭ ("Stone Bridge"), where the branch road leads to Hai-ch'êng, we saw nothing of the immense traffic of which I shall have to speak hereafter, for traffic in Manchuria is conducted on peculiar lines, the caravans of carts starting daily at any hour from two to four o'clock in the morning, and reaching their destination (a distance of about thirty miles) before nightfall. The caravans which had started south on the same day as ourselves had not yet reached Shih-ch'iao-tzŭ, and such as had started the previous morning had taken good care to reach Newchwang the same evening. As I shall have occasion to mention hereafter, accidents may retard a number of caravans in company, and delay their arrival at their proposed destination; and this is well provided for by solid inns or, rather, caravansaries—walled enclosures with buildings along the sides, and large compounds in the centre for the caravans—dotting the whole line of the highroads on which trade is conducted. There was a little local trade, and in the bright moonlight I noticed a number of carts bringing in the daily supply of firewood for the consumption of the port. This consists of millet stalks piled high in carts which come into Newchwang every morning and take up their position on the market-place adjoining, and to the west of, the Consulate, where the loads are disposed of and then distributed all over the town. I am loath to leave these millet stalks without a few more words regarding them. They are a very important factor in the trade of Manchuria, and deserve more than a passing notice. The most valuable use to which they are put

manufacture of coarse mats of various sizes and shapes, ling to the purpose for which they are intended. What strike every traveller in Manchuria is the matting which high around every large cart bringing produce from the r, and which contains the loose loads of beans and millet. es the bottom of the cart, encircles and covers the con- and keeps them firmly in position. If he does not e this, he will at least not fail to notice the mat spread e stove bed in the Chinese inn in which he has to pass the . I venture to say that, if he happens to be travelling in ot weather, he will examine this mat very carefully, and, is a wise man, he will have it taken up, well shaken, dusted leaned before he ventures to seek repose. The finer mats oven of reeds also grown in Manchuria. But I am wan- g from the point, which is, that these mats are woven by from the outer sheaths of millet stalks. The stalks are sed for firewood, and, especially in the Fêng-t'ien province, ncing houses and compounds. They are also largely in house building; stalks are woven together and plas- with mud to form walls and roofs. These are the poorer s in the country. Large stacks of them may be seen in farmyard, shaped exactly like peat-stacks in Scotland.

rom Shih-ch'iao-tzŭ the road runs east by north over flat try to Hai-ch'êng, and the farther we travelled the nearer pproached the low range of hills which runs north from iao-tung peninsula. Clumps of trees, for the most part w, elms and firs, marked the villages and graveyards, and agnificent fields—a contrast to the cultivated patches of in Central and Southern China—were one mass of drills, which protruded the stubble of the various millets. e drills looked exceedingly neat and beautifully ploughed; hen crossed, as they often were, by cart to make a short r to avoid a bad part of the road, words fail me to

express the disagreeable sensations experienced. Between Shih-ch'iao-tzŭ and Hai-ch'êng we passed through the village of Kan-wang-chai, the scene of the battle of 19th December, 1894, where the Japanese casualties were exceptionally heavy. Had the Chinese, who were posted behind the mud walls of the village, been able to use their guns there would undoubtedly have been still greater slaughter, for the approach from Hai-ch'êng, whence the latter came to the attack, is an exposed flat without any cover whatever. But the Chinese could not shoot, and retired in an undignified manner on Niu-chuang. The city of Hai-ch'êng is admirably adapted for defence, and the Japanese, who entered it by the south gate without any serious opposition on the forenoon of the 13th December, 1894, and evacuated it on the 30th November, 1895, took eager advantage of its natural environments to make it impregnable —at least against the Chinese. Low hills are found at short distances outside the four walls of the city, and these as well as an eminence—supposed to be an old Corean fort—in the south-eastern quarter of the town itself were all fortified against possible attempts to re-occupy the position. When we crossed the plain to the west of the town, which we entered by the west gate, we came across from time to time remnants of earth-works which had been thrown up by the Japanese, and the fortifications which had been erected on the old Corean fort had evidently been destroyed by gun-cotton or dynamite. Of course all the guns had been removed at the time of the evacuation.

At Pa-li-ho-tzŭ, a hamlet some three miles to the south-west of Hai-ch'êng, and on the left bank of a stream which flows into the Hai-ch'êng river, we endeavoured to satisfy the cravings of hunger; but the innkeeper told us that he had lost everything at the hands of Chinese soldiers during the war, and had been unable to resume business. There was no help for it

ut to hurry on to Hai-ch'êng, which we reached at 3.30 P.M., aving struck the ice-bound river opposite the west wall of the ity. This river, which flows along the south, sweeps north-ards along the western wall past the west gate, and flows est by north into the Hun Ho, an eastern branch of the iao river, passing a little to the north of the inland town of iu-chuang. Our wants were abundantly satisfied at the ission House of the United Presbyterian Church of Scotland, here we passed the night on our way through the city. I oticed that great destruction had taken place, and it is safe to ay that in every city occupied by the Japanese the same tale ould be told, for houses foolishly deserted by their owners on he approach of the enemy were looked upon as legitimate spoil y the Chinese who remained.

I observed on this, the first stage of our journey, that water or household and other purposes was obtained from wells, and hat the supply was drawn either by a windlass fixed over the outh of the well or by the method, so common in Southern China, especially in the neighbourhood of Amoy, of a lever working on a pivot erected near the well, and having attached to the thin end a rope and a bucket and to the heavier end a weight of stone or iron. This latter is in fact the *shadouf* of Egypt, the *lat* of Northern and the *picottah* of Southern India. The magistrate of Hai-ch'êng was absent; but, in accordance with a request sent to the Yamên, the north gate of the city was to be opened for us at four o'clock next morning, when we left for Liao-yang Chou, the next stage of our journey. Of course the warders were asleep when we reached the gate, and a quarter of an hour's delay was the result. I did not blame them for preferring their beds to a bitterly cold atmosphere, but my followers grumbled loudly because they were less comfortable. It is exceedingly difficult to make reliable observations in the moonlight: a bank of snow by the roadside is magnified

into the snowclad base of a hill represented by the darkness beyond, while a bed of snow in a valley is mistaken for a river. When daylight appeared, however, I found that low hills jutted into the plain from the range to the east, rendering the road, which goes north by east, less level than to the west of Hai-ch'êng. Here and there it lies between low embankments. In every village through which we passed traces, in the shape of ruined houses, were visible of the devastation caused by the Chinese forces which were massed during the war between Hai-ch'êng and Liao-yang to prevent the advance of the Japanese to Moukden. On nearing the hamlet of T'ang-chih, or, as it is more generally called, T'ang-kang-tzŭ, eighteen miles from Hai-ch'êng, low hills break into the plain from the east. They were lightly clad with snow, and a small temple presides over the few mud-houses which constitute the hamlet. Here are situated the famous sulphur, I should rather say mineral, springs of the province. Some care has been taken of them, for three stone baths have been constructed and a house built over them, and outside there is a large circular bath for the general public. The water, which was tepid, was several feet deep, and there was a whitish efflorescence of sulphur on the encircling stones and withered herbage. The air was laden with an odour far from pleasant. I was induced by a friend who was taking the waters internally and externally to join him in his morning draught; but I regretted my imprudence, and the companion of my journey, who declined the proffered cup, had his knowledge increased by my self-sacrifice. He acquired the knowledge; but I flatter myself that my knowledge was more perfect, gained as it was through pain. A few miles to the east of T'ang-kang-tzŭ are the Ch'ien Shan, a cluster of hills culminating in peaks, none appearing to rise higher than a thousand feet. The name means "the Thousand Hills," and there is a legend that the

original number was 999, but, as this idyllic odd number was unsatisfactory, an artificial hill was added to make the thousand. I was surprised to hear it, for the Chinese are very fond of odd numbers, but to have to say *Chiu pai chiu shih chiu shan* ("the 999 Hills") every time reference had to be made to them may have settled the necessity of adding a hill, and thereby curtailing the name to two characters. They looked very inviting even in winter, and I am informed by fellow-countrymen who have visited them that in spring they are clad with a great variety of beautiful flowers. There are temples, too, available for residence, and at one of these, Lung-ch'üan Ssŭ ("the Temple of the Dragon Spring"), there is an unceasing supply of crystal water. Four miles north by east of T'ang-kang-tzŭ is the village of An-shan-chan, the most northerly point reached by the Japanese during their invasion of Manchuria. Under pretence of advancing on Liao-yang from Hai-ch'êng they pushed forward as far as An-shan-chan, and then turned south-west to Niu-chuang, leaving the Chinese, who had fallen back on Sha-ho-tzŭ and Liao-yang, utterly bewildered as to their movements. The village, which is situated at the north end of a short valley near the right bank of a small stream flowing west by north to the eastern branch of the Liao River, consists of a long street in ruins, and at the north end a square, high walled enclosure, with a few houses inside, evidently a dilapidated camp. It derives its name from a hill immediately to the east of it—An-shan, or "Saddle Hill," so called from a depression in its centre. To the west a few low hills of bare granite are to be seen. If Saddle Hill had been well fortified a handful of brave men who knew their duty could have held this road against an overwhelming force. North of An-shan-chan the country opens out into a broad level plain, and following this for ten miles we struck Sha-ho-tzŭ, a bustling town built on both banks of another tributary of the Eastern Liao. The day

was well advanced when we crossed the frozen stream, and we had to push on to reach our destination for the night, still eleven miles distant. Six miles from Sha-ho-tzŭ a range of low hills (Shou Shan) creeps into the plain from the east, and separates it from the Liao-yang plain. On the low pass there were traces of earthworks which had been thrown up during the war, and to all appearances guns had been mounted here. Darkness was setting in as we passed through the large village of Pa-li-chuang, and the carters were unwilling to go on; but I knew that comfortable quarters awaited us at the mission station within the city walls, where we were kindly welcomed and hospitably entertained by friends at 7.30 P.M. We were thus fifteen and a quarter hours on the road from Hai-ch'êng to Liao-yang, and if two hours be deducted for rest and refreshment, thirteen hours' actual travelling time remains. The distance covered was forty-four and one-third miles, and this agrees pretty closely with what we afterwards discovered, namely, that the average speed of a cart is ten *li*, or three and a third miles an hour. Liao-yang, at one time the capital of Liao-tung, is a city with many historical associations, but into these I do not enter, for this chapter is intended to be a record of travel and nothing more. It is surrounded by a high wall of stone and brick, with a gate in each of its four sides. There is only one low eminence within the walls, and that is occupied by the Treasury. The population is estimated at 50,000. It is a great centre for distilling the native spirit called *samshu*. The neighbourhood is famous for its fruits, which include pears, grapes, peaches and cherries. The country is fairly well wooded, the willow, pine and elm predominating, and in the bare branches of the latter bunches of mistletoe were growing. We did not leave the North Gate of Liao-yang till 10 A.M. next morning, the 4th of January, being somewhat fatigued by our long journey the previous day. On our way to the gate we

noticed the lofty pagoda, which lies outside the north-west angle of the city walls. Three roads, known as the west, middle and east roads respectively, lead from Liao-yang to Moukden, the capital of the Southern province of Fêng-t'ien. We selected the middle road, and, after covering a little less than three miles, struck the left bank of the T'ai-tzŭ Ho. This stream, also called the Ch'a Ho, or Erh-tao Ho ("Two Branch River"), rises in the hills near the Eastern Palisade, flows west by south for some fifty miles, then west by north to the north-east angle of the walls of Liao-yang, where it turns north and west to join the Eastern Liao. It bifurcates on nearing the city, and again reunites to the north-west of Liao-yang at a place called Huang-in-tzŭ. A distance of about a thousand yards separates their shingle beds, with wooden bridges thrown over them and layers of millet stalks spread on the top to form the roadway. The two branches were of course frozen and easily fordable on the ice. North of Liao-yang the range of hills to the east which we had in sight since starting recedes to a greater distance, leaving an immense agricultural district, dotted with farm-houses, embowered in trees, which also mark the positions of graveyards with their mud, cone-shaped mounds. Between Liao-yang and Hsiao-yen-t'ai, where, owing to our late start, we were obliged to spend the night, we met several large caravans with beans, tobacco, abutilon hemp (the fibre of *Abutilon avicennae, Gaertn.*) and frozen pigs lashed in every possible position around the laden carts. These pigs, which were all scraped and dressed, were usually of large size, weighing as much as 200 to 300 lb. apiece. They are fed in the province of Kirin on millet and the refuse of distilleries, killed in winter and brought down from the interior for consumption during the cold weather. As it would be too expensive to bring the millet itself, it is converted into spirits and pork, which find a ready sale everywhere. A single caravan often numbers

as many as twenty large carts, each with a team of seven animals. In the best caravans, that is those which go into the provinces of Kirin and Hei-lung-chiang and into Mongolia, a team usually consists of a pony in the shafts and six tracing mules three abreast. In the case of caravans or carts going shorter distances, teams are all ponies, mixed mules and ponies, or a mixture of mules, ponies, donkeys, or even oxen.

Twenty miles still separated us from Moukden, the capital of the province, and at 3.45 A.M. on the 5th of January we proceeded north by east over the frozen fields, crossing drills and taking the mud boundary dykes at a canter. After covering thirteen miles we entered the village of Pai-t'a-p'u, where the middle and west roads unite. As the name implies, the village has a pagoda visible at some distance in this flat country. Four miles beyond we struck the left bank of the frozen Hun Ho, whose pebbly bed is of very considerable breadth. In the open season the Hun Ho is not navigable as far as Moukden: junks of any draught do not ascend beyond a distance of ten miles from the capital. At page 67 of Mr. James's book, *The Long White Mountain*, there is a picture of a Lama monument not far from the south gate. As a matter of fact there are four of these, one outside each of the four angles of the city. We passed the Nan T'a ("Southern Pagoda") on our right two miles from the river, and soon after struck the southern suburb, which we skirted eastward to the Scotch Mission Station, which we reached at 11 A.M., and where we were warmly welcomed and spent the rest of the day and night. A small stream, now of course frozen, flows along the southern suburb, which is very extensive, and its bed contains numerous springs of fine clear water. As my business was urgent, we made no stay at Moukden, but hurried on next morning towards Kirin. On our return, however, we spent the 4th of February in the capital of Fêng-t'ien, and I may here insert a brief description of it. It

ies some 320 feet above sea level, and its lofty crenellated brick walls, with eight towering gateways and the usual buttresses, enclose a square mile of ground covered with one-storied brick houses. There is also a suburb surrounded by a mud wall. The main streets, which lead to the eight gates, are wide, with narrow side streets and lanes. Except for its size, one might readily imagine oneself back in Peking, and the resemblance extends even to the filth. Nurhachu, the founder of the Manchu dynasty, shifted his capital from Liao-yang to Moukden in 1625, and in 1631, during the reign of his fourth son and successor, T'ai Tsung, the present wall and Imperial Palace were built. The latter we had the opportunity of passing through, as, on arrival at the walls of the forbidden city, we found a gate open and naturally entered. It was small and had an aged and deserted look about it, but was in a fair state of preservation. The roofs of the palace and pavilions attached to it were of yellow and blue tiles. We traversed the main streets, crowded with country people making their purchases for the China New Year; visited a gun factory, where sporting matchlocks were being turned out at $4 apiece; proceeded outside the East Gate to the handsome church of the United Presbyterian Church of Scotland, and in the afternoon walked to the Temple of Earth —a walled oblong piece of land surrounded by a brick wall, now doorless, outside the East wall—and to the tomb of the Chinese statesman Wên Hsiang, who, originally a table-boy, was educated by his master, married his daughter, and rose to be a member of the Grand Secretariat, President of several of the Six Boards, and a member of the Tsungli Yamên. He died on the 26th of May, 1876, and was buried in the beautiful little graveyard outside his native city. The remains of the father-in-law lie a little to the east of his protégé's tomb. We also visited the wards of Dr. Christie's Hospital, where excellent work is being done for suffering humanity, and where a number of

students are being taught medicine and surgery. In 1898 Dr. Christie had 539 in-patients, and performed 954 operations, of which 914 were cured, 36 improved, 3 not improved, and only one died.

At 5.30 A.M. on the 6th of January we left Moukden to make the district city of T'ieh-ling before nightfall, but we only succeeded in covering thirty miles, and had to put up for the night at the village of Fan-chia-t'un, which lies pleasantly situated at the base of hills jutting in from the receding eastern range. The country north of Moukden is well wooded with elm, willow and pine, and carts laden with fir branches were entering the capital as we left it. Mistletoe was growing luxuriantly on the elms. Thirteen miles from Moukden we crossed a streamlet, the P'u Ho, a tributary of the Western Liao, before entering the village of the same name, where we breakfasted. The country between Moukden and Fan-chia-t'un is hilly, and the road we traversed is known as the hill road, in contradistinction to a more level road to the west. About fourteen miles separate Fan-chia-t'un from T'ieh-ling Hsien, a very important district city near the left bank of a stream called the Ts'ai Ho. We entered it at 8 A.M. on the 7th of January, and as a telegraph office had recently been established here I was able to send a message to the Governor at Kirin notifying him of my progress. T'ieh-ling is, owing to its position on the Liao, a very important place, and it has become still more important within the last two or three years, on account of the opening up and development of the country to the east of it, and notably the Hai-lung-ch'êng region. The late war between China and Japan drove great numbers of people from the south of the peninsula, and they had to seek a livelihood elsewhere. They went north to Hai-lung-ch'êng, and devoted themselves to agriculture in that fertile region. The result is evident to-day.

As we entered the city we encountered string after string of carts laden with beans, which were being deposited in the numerous pawn-shops to be seen on all sides. These shops are not only pawn-shops in the ordinary sense of the word, they contain also large compounds, where beans, millet and other products are stored in ricks, encircled with the matting already referred to, till the river opens in the spring. The tops of the ricks were everywhere visible, and more were being added. I noticed on the sign-boards of these shops, which were surrounded by high crenellated brick walls, with guns and rifles showing, that arms would not be received in pawn. So great was the bustle and confusion in the streets that our mounted escort had some difficulty in clearing a way for us to get to an inn. The place was full of blacksmiths' shops, where horseshoes were being turned out, the iron coming from a range of hills in the neighbourhood, and giving the name to the city—T'ieh-ling, or "Iron Range". Crossing the sandy bed of the T'ai Ho, the road runs north by east along a plain bounded by low hills, which were partly clad with snow. Gradually the hills close in and give place to another plain of similar proportions, again landing us to the north in somewhat broken country. I have travelled in different parts of China, I have seen the great salt and piece goods traffic between Ssŭ-ch'uan, Kwei-chow and Yünnan, but I never saw a sight which from its magnitude impressed me so much with the vast trade of China as the carrying trade from north to south in Manchuria. Until late in the afternoon, when, owing to a snowstorm, we had to abandon the possibility of making the city of K'ai-yüan Hsien that night, we met at least a thousand carts heavily laden with the produce of the interior, including beans, tobacco, butilon hemp, dressed pigs, skins and large droves of black pigs all bound south. If we take the average team to have numbered five animals, we met some five thousand animals in one day.

At one place, where a difficult gully had to be crossed, there was at least one mile of carts, three deep, waiting their turn to pass it. Numbers of men and boys were to be seen on the roads vying with each other in collecting the droppings of animals, which they scoop into wicker baskets. Much valuable manure is thus collected and utilised in the adjoining fields. Many a cart comes to grief, and many a lame animal follows behind its cart. To-day I saw one cart topple over at a difficult part of the road, and the poor pony in the shafts struggling to get up. At another place the axle had snapped and the cart lay useless. Owing to the snowstorm in which we were caught little could be seen of the country. It was sparsely wooded, dreary and uninteresting, and the cold was intense; our furs were not a sufficient protection. In the last of a caravan of carts from beyond the Palisade I noticed a couple of coffins mixed up with abutilon hemp and bean-oil. They were tenanted; but later on we met loads of new coffins and parts of coffins all ready to be fixed together on arrival at their destination. Bean-oil is carried in two different ways: in wicker baskets made of willow twigs lined with waterproof paper, the baskets being of various sizes, sometimes as large as a cart itself, and capable of containing 800 pounds of oil, or, for rough roads, wooden boxes, beautifully dovetailed, containing 360 pounds of oil. Most of the oil which comes to the port is carried in boxes, whence the oil is transferred to baskets for export by steamer. The oil is used both for culinary and lighting purposes.

We spent the night of the 7th of January at the village of Sun-chia-t'ai, six miles south of the district city of K'ai-yüan Hsien, and, starting at four o'clock next morning, we crossed two hours later a frozen stream—the Ching Ho, a tributary of the Western Liao—and passed westward outside the south wall of the city and northwards skirting the western wall. It was

rk when we struck the city, and we saw nothing but
h dark walls looming on our ri K'ai-yüan was the
f one of Nurhachu's greatest ories over the Chinese.
ntry to the north of the city is ken and undulating,
t a distance of seven miles we d the village of
en-t'ai, just within the Pa which at one time
d from the Great Wall of Cl h-east across the
i in the province of Kirin. A eway and a row of
were the only things tha k the site of the
e erected during the Ming d to keep back the
l hordes. Near Ma-chien-t' r de joined
stern Palisade, whence it ran r a little to
t of the Imperial tombs near Hsing and to the
d south of Fêng-huang T'ing. Tl v intended
ent the raids of Tartar tribes occupying country to
rth and east. Little but the gates, each with its guard
w soldiers, remains of both palisades. Six miles to the
f the Palisade is the unwalled city of Yü-shih-ch'êng-tzŭ,
e seat of a prefect and called Ch'ang-t'u Fu. It lies in
, to gain which we followed the road over low rounded
dently cultivated hill-tops. The country near the city,
is mostly built of grey bricks, is well wooded. Twenty
west by south of Ch'ang-t'u Fu, and at the junction of
o streams which form the headwaters of the Western
here is a very important trade centre called T'ung-chiang-
'River Junction"), whither much of the produce of
eastern Mongolia and Kirin is brought for shipment.
, the western stream comes from Mongolia itself. North
ang-t'u Fu, through which a stream of traffic flows to
chiang-tzŭ, the country continues hilly and undulating,
here and there with farmhouses nestling amid elm
but there is an absence of the larger villages so common
south. During the whole of winter little life is seen

away from the highways, where the whole energy of the cou centres in the conduct of the immense traffic to the trade de In spring and summer and autumn, on the other hand, the icy grasp of winter is relaxed and the rivers are ope navigation, the roads, owing to their softness, are all deserted, and the teams and their drivers, reinforced by thousands of labourers—annual immigrants from the prov of Shantung and Chihli—devote themselves to the cultiv of the products of Manchurian soil. At 6 P.M. on the eve of the 8th of January we stopped for the night at the village of T'zŭ-lu-shu, having covered forty miles since mor Here we had some difficulty in finding lodgment, for it wa of caravans bound south. During the day we met carts laden with beans, abutilon hemp, dressed pigs, coffin wood especially tobacco. Several droves of pigs were also g south. It was bitterly cold in the morning and evening windows of my cart were frosted hard, and my moustache frozen to the fur collar of my overcoat.

At a quarter past four next morning we were again pro ing northwards, and at eight o'clock we entered the villag Ssŭ-p'ing-kai, fifteen miles from T'zŭ-lu-shu. It was very when we started; each carter had a paper lantern attache one of the shafts of his cart, and long lines of similar lan ahead heralded the approach of strings of caravans. Owi the length of the teams of large carts each driver walks a lantern in his hand to show his team the way. During day he sits on the top of the load in front, and with voice whip urges on his team. A Manchurian whip is a very for able weapon. It is about twelve feet long, with a thon equal length. The butt end is usually a sapling or s branch of a tree, and lashed to it is a tip several feet l composed of three strips of split bamboo woven togethe a point to give the necessary elasticity. In the hand

es both hands to wield it—of a skilful teamster it can be most effectively, for he can reach any lagging animal of ng team without punishing another. From behind, the of a caravan look like so many rod-fishers in the act of g their lines.

rth of Seŭ-p'ing-kai the road er the undulat- t less wooded country, and af · twelve we dropped into the unwalled city of , or Fêng-hua , the seat of a district magis ra It v a very busy , and caravan after caravan w through it. The s were anxious to remain he e the night, declaring millet for their animals was ab rdly cheap, but, as a little uch attention was paid to us l the populace, I told them y the millet and bring it alo g. This they did and off rted, much, I fear, to the regret of the crowd that sur- ed us. Four miles more brought us to the hamlet of Pien- h'êng, where we entered a very large inn, only to be told here was no accommodation for us; but our escort, always useful on such occasions, promptly ejected the innkeeper his staff from a large room used as an office and installed erein. There was no rest for us, however, until bedtime, nder one pretext or another the servants of the inn kept ing our room from the end where a screen formed the door. any things had been forgotten; in other words, they wanted spect us and our belongings. But the four miles' traffic een Mai-mai-kai and Pien-lien-ch'êng was a revelation to The road is downhill, and up struggled the heavily-laden with their great loads of beans, abutilon hemp, frozen dog skins, immense logs of red pine about three feet in eter, tobacco, *samshu* in baskets lined with oil-paper, and r articles, while down rushed empty carts at full speed. carters and animals caught the excitement, and down we d over a splendid wide road, polished by wheel and hoof,

and shining like a mirror. So far as traffic is concerned, th scene reminded me of the Strand on one of its busiest day I was surprised at the traffic north of T'ieh-ling, but this wa far more imposing.

We left Pien-lien-ch'êng at 4.15 A.M. on the 10th o January in darkness and intense cold, meeting on the wa hundreds of carts with their lanterns shining brightly. Her curiously enough, one of my ponies had the misfortune to pa company overnight with his fine metal-mounted foreign hea stall! The present owner has long ere now discovered tha "it's not all gold that glitters". The road continues downhil and mules and ponies were falling everywhere and regainin their feet without receiving any apparent injury. The animals are exceedingly clever. When the carters prefer th fields to the road, it is very often necessary to make a fairl steep descent to get back to the latter, and then comes th opportunity for the pony in the shafts to show his surefooted ness. Down goes the team, and the little animal in the shaft places his four feet together and slides down the incline. H takes good care not to rush the slope like the tracers, but he i frequently dragged to the ground in spite of all his effort There was a range of low hills, the summits just visible, to th eastward, some ten miles from the road, and with this exceptio all that was to be seen was the sun, the blue heavens an the rolling fields, an eastern prolongation of the Mongolia plains to the westward. The country was comparatively we wooded with elm and willow and dotted about with farm houses, and here and there I observed a plantation of youn trees to all appearance carefully tended. From Kuo-chia-p'i a village distant some twenty-eight miles from Pien-lien-ch'êng and where we had our forenoon meal, we proceeded northward over a fine level road, in company with numerous empty car on their way to K'uan-ch'êng-tzŭ for produce. The traffic wa

extraordinary. Four rows of carts again occupied the ach cart vying with the other to get ahead in the race. k occurs, and all have to come to a standstill; a large ing south has upset, and the beans are scattered all over dway. These accidents and blocks are taken as a matter se, and a way has to be cleared before traffic can be d.

e miles north of Kuo-chia-p'u we struck the left bank of tern branch of the Western Liao at the southern en- to the village of Ch'ao-yang-p'o. Here it was a narrow, stream. North of Ch'ao-yang-p'o snow had fallen , and on its hard, slippery surface mules and ponies lling about in the most reckless manner, and, as our own proved equally reckless, we had to abandon the idea of Ta-hei-lin-tzŭ, which we had marked out as our resting- for the night. Caravans with the usual produce were sing south all day, and we also encountered six droves going to Moukden—black every one of them. Most of rters seen during the day wore nose-protectors against ite. A protector usually consisted of a cloth band—the diamond-shaped and covering the nose—connecting the des of a cap fastened under the chin. Others wore masks, leaving only the eyes exposed. I frequently it necessary to tie my handkerchief round my head across e in the early mornings. It was impossible to hold the rchief in position with the hands, for the latter, encased s were in lined gloves, became so intensely cold and that I had to tear the gloves off with my teeth and my hands in the capacious sleeves of my fur-lined coat. by east of Ch'ao-yang-p'o the country is well wooded, the roadside grew numerous clumps of willow bushes ng up from the roots of old trees. Some eight miles of Ch'ao-yang-p'o is the village of Ka-lou, and here we

had to spend the night with the assurance by the carters that they would easily land us at K'uan-ch'êng-tzŭ or Ch'ang-ch'un Fu, the most important commercial mart in Manchuria, on the morrow. This they did, but it took them fourteen and a quarter hours, for we started at 4.15 A.M. and did not reach the city till 6.30 P.M. My friends of the Presbyterian Church of Ireland Mission received us warmly, and it was with some difficulty that we escaped from them on the afternoon of the following day, the 12th of January. We had now reached the most northern point of our journey, and entered the province of Kirin on its western side. K'uan-ch'êng-tzŭ, which lies on the left bank of the Yi-t'ung, a tributary of the Sungari, is, as stated above, the chief commercial mart in Manchuria. It is the distributing centre for trade to and from Northern Kirin, Hei-lung-chiang and Eastern Mongolia. The city itself, the population of which is estimated at about 120,000, really stands on Mongol soil, and contains a Mongol office for the collection of land and other taxes; but for administrative purposes it is incorporated with the province of Kirin. Besides being a distributing centre, it is also the seat of several important industries, such as the manufacture of indigo and felt. The former is derived from *Polygonum tinctorium*, *L.*, and the latter is made of ox-hair. The city, which is surrounded by a mud wall, measures roughly four by one and a third miles, and presented a scene of bustle and excitement. We had no time to explore the place, for the Prefect paid me a lengthened visit and in the course of the interview informed me that he had received instructions from the Tartar General or Military Governor of the province of Kirin to provide a suitable escort to conduct us in safety to the provincial capital, still eighty miles distant. Eight cavalrymen, armed with breech and muzzle-loaders of various patterns and swords, were accordingly in attendance when we were about to start, but

them grumbling because th r had received no money
relling expenses, I told the petty officer in charge to
to his superior officer for th necessary funds. He was
al in his mission, and off we started at 2.30 P.M. in an
direction for the city of Kirin. We had not gone
an seven miles when the escort hinted that it would not
to proceed further that day. This rather staggered us,
only house in sight was a wretched hovel, consisting of
mmon room and a small room; but the cavalrymen were
to the occasion, and induced tl occu ts to give up the
oom for our sole use during t ght. After we had
down, my writer, who had ime been interviewed
escort, came and reporte t the road between
ch'êng-tzŭ and Kirin was ve u e, that brigandage
common occurrence, that inn were few and far between,
at to go on till dark would simply be to court danger.
ories related by the escort must have been very harrowing,
was visibly in a state of panic, and we thought it as well
k to our means of defence, and had our revolvers and
nition overhauled.

e left our miserable quarters at Hou-pai-tzŭ at 4.15 A.M.
13th of January, and once more struck east by south.
l ranges of low hills lay ahead of us; some were cultivated,
were russet with scrub-oak. Over and round these
lered the roadway, covered a foot deep with snow. Sixteen
brought us to the hamlet of Shih-ch'ang ("Stone Quarry"),
large granite millstones were being turned out, and
miles beyond we crossed a frozen stream—the Yi-mu,
utary of the Yi-t'ung, which passes K'uan-ch'êng-tzŭ.
A.M. we halted at Hei-shan-tsui-tzŭ for a meal. It was
ary inn at the foot of a low conical hill clad with scrub-
We had not long seated ourselves on the *k'ang* in a
room at the west end of the common room, and were

making notes of the day's journey, while our cook was busy lighting a fire to prepare our midday meal, when bang went a number of guns, bullets whistling over the inn. All at once there was the greatest excitement; carters rushed out into the courtyard, which was full of carts; our escort snatched up their guns and followed their example; and my companion and I sallied out with our revolvers to do battle for our property. We were attacked by brigands. Our escort were soon blazing away at different angles of the compound, which was surrounded by a high fence of willow and oak branches, of which the gate itself was also made. Stray shots came whistling along; but, as we could see nobody to fire at, we returned to the room, leaving the escort to carry on the war. Here I found the writer cowering behind the *k'ang*—the raised brick platform containing the brick flues or heating apparatus on both sides of the interior of the inn—in what may be described as a state of absolute funk, and, when I asked him what he was doing, he had some difficulty in replying that he was guarding my property during my absence! The said property consisted of an overcoat, a couple of notebooks, a pencil and a compass. Now and then the escort rushed in advising us not to be afraid, and I as often told them that we were not at all afraid as we could depend upon our revolvers. This was not exactly what they wanted, for they evidently required as much cheering up as my writer. When, however, a bullet came whistling into the room in which we were seated and scattered the mud from the opposite wall, we thought things were getting rather hot, and again sallied out to battle. My companion's blood was now up, and, snatching the Winchester repeater from the sergeant of the escort, he determined to get a long shot. By this time my companion's gun-case had been extracted from his cart by the cook; but, in spite of the prayers of the escort, who carried muzzle-loaders, for shot, we were unable to open it, the lock

ring got jammed by the jolting of the cart. When we hed into the courtyard the second time the gate suddenly v open and in dashed a laden cart, the carter urging his m at full speed. "Shut the gate! shut the gate!" was uted on all sides; but before that could be done in crawled white pony—a veritable bag of bones. This the escort iexed, declaring that it belonged to the brigands, and, as ody else claimed it, they at once entered into possession of s trophy of war. My companion did not get a chance with sergeant's Winchester, for the firing became more desultory l soon ceased. The brigands had gone west, and a verbal ssage was sent to us, through Chinese travellers who came o the inn, that had they known we were foreigners they ıld not have attacked us; that they had no animus against eigners; and that they would now allow us to pass unmo-ed. Five men afterwards came in and declared that they l been robbed of their fur clothing. A discussion now arose ong the members of the escort as to the number of the gands; some said forty-two, others forty-four; but the jority seemed to hold by the higher number. They may ve been right, but neither my companion nor I saw one. ey maintained that they wounded several of them, and when came to review the loss on our side we discovered a pony ted in a cart in the middle of the courtyard with a fresh und under one of its fetlocks. We afterwards met from time time many men in chains on their way to the capital of the ovince, and I have reliable authority for stating that about housand heads fall every year. There was little cultivation ong these hills, and high brushwood afforded excellent ver for robber bands. What struck me as being very peculiar the whole affair was the utter indifference of the employés of inn: they went about their usual duties as if nothing was ppening, and I came to the conclusion either that they were

inured to these affrays, or that they were hand-in-glove with the brigands. I am inclined to think that the latter is the more reasonable conclusion.

Having finished our meal, the preparation of which had been so unwarrantably delayed, we left the inn ready for action, but not a trace of a brigand was to be seen. Emerging from the hills at 2 P.M. we entered on an undulating, fairly wooded country, and put up for the night at Hsin-lung-tien, where the local military authority informed me that he had received instructions from the Tartar General to add four more cavalrymen to our escort. Of trade we saw little during the day: coffins, coffin-wood, tobacco, charcoal and dressed pigs were being conveyed to K'uan-ch'êng-tzŭ mostly in sleighs.

It was intensely cold when we again faced eastwards on the morning of the 14th of January. At five o'clock the coats of our teams were all frosted white and the queues of the drivers and even the hairs of my overcoat were all of like colour. The road passed over flat then undulating country, crossed low hills, surmounted a low range and entered the village of Ta-shui-ho, the junction of the commercial and imperial roads from Moukden to Kirin. Three miles west of Ta-shui-ho we crossed a small stream and another at Ta-shui-ho itself. These unite further north and go to join the Sungari. Before entering the village we struck the telegraph line from the south, which runs north through Kirin and Tsitsihar to Russian Siberia at Blagoveschensk. On leaving Ta-shui-ho we entered among low hills russet with scrub-oak, and apparently forming the western foothills of a range about 3,000 feet high further to the east. The road winds out and in among these hills, seeking an eastern outlet, and at a distance of seven miles from Ta-shui-ho reaches its highest altitude at the low but steep Lao-yeh Ling Pass. Perched on the summit of the pass are two beautiful temples—Ling-yen-ssŭ and Kuan-ti Miao—in excellent repair,

and one can imagine what a lovely spot this must be when the oaks, willows and elms, which thickly dot the hills and encircle the temples, have decked themselves in their summer greenery. Even in winter, with its mantle of snow, the pass was enticing. We descended to the hamlet of Erh-tao-ling-tzŭ, where we remained for the night. We had hoped to make Kirin before dark, but we were still about ten miles from the Mission House of the Presbyterian Church of Ireland, which lies outside the east gate of the city, whence Dr. Greig had sent a cordial invitation to us by special messenger to make his house our home during our visit. The messenger met us early that morning, and had returned with our acceptance of the kind invitation. We did not leave Erh-tao-ling-tzŭ next morning till 6.30 o'clock, and at grey dawn Dr. Greig and the Rev. Mr. Crawford of the Irish Mission, who had come out in their sleigh to meet us, gave us a hearty welcome. They insisted on our taking their places in the sleigh. Two low ridges still hid our destination from view, and, on surmounting the latter, we came in sight of Kirin and the frozen Sungari just as the sun began to peep over the eastern hills.

The city of Kirin, the capital of the province of that name, is lat. 43° 49′ N., and long. 126° 46′ 27″ E., occupies for two miles the left bank of the Sungari, in a bend where the river sweeps from west to east on its way to join the Amur. It also goes by the name of Ch'uan Ch'ang, or "Dockyard," because it is the chief boatbuilding centre on the Sungari. It stretches northwards from the river somewhat irregularly, and is surrounded, except on the river side, by a crenellated grey brick wall some thirteen feet high, with eight gates. Houses, many of them on piles, face the river, whence a number of gates give access to the town. Here the valley of the Sungari lies within an amphitheatre of hills, which were all clad with snow at the time of our visit. There is an extensive growing suburb outside

the west wall of the city, and here, at a stone's throw from the road leading to the west gate, is the execution ground, while the branches of a row of trees to the south of the roadway are utilised for exposing the heads of criminals. We entered the city by the west gate, and passed through it along the street which skirts the left bank of the Sungari, emerging by the small east gate. A mile from the latter is the station of the Irish Mission, where we were most comfortably housed and hospitably entertained for a fortnight. During the first few days of our residence I was busy discussing and settling with the native authorities the case which had brought me to Kirin, and when that was finished I had leisure to visit the city and the sights in its neighbourhood. I should mention that eight mounted men—part of the governor's bodyguard—were always in attendance upon us. One day we descended to the Sungari, which in winter is utilised as a highway for sleighs, carts, horsemen and foot passengers, skirted the city for some distance, passing piles of wood floated down the river in the season and caravansaries surrounded by long wooden piles standing vertically in the frozen river, entered the city and crossed it from south to north, recrossing it from west to east on our return. The western part of the city is occupied for the most part by public offices and the residences of retired officials, while the centre and east are given up to business. The population cannot be far short of 100,000. I noticed many good shops and one or two pretty temples. The streets, some of which are paved with wood, are not so wide as those of Moukden: they were covered with hard snow, but in the rainy season, according to Mr. James,[1] they are a quagmire. What must strike every visitor to Kirin is the vast quantity of wood used in fencing compounds. Long, huge logs grooved on two sides are driven into the ground six

[1] *The Long White Mountain*, p. 283.

to eight feet apart, and the ends of planks, many of them several inches thick, are dropped into the grooves, thus forming a wall. Did the carpenters of Kirin possess decent nails, at least two-thirds of this valuable timber could be saved for other purposes. And the workers in wood of Kirin are exceedingly skilful. Furniture, in fact, is one of the specialties of the city. I saw shops full of beautiful o : cabinets, chairs and small low tables for serving food on *k'an* . These little tables appeared to me so graceful and neat t I promptly bought four of them. Another special industry of Kirin is the tanning of hides and the manufacture of shoes. The *wu-la*, or Manchurian shoe, as it may be called, is of peculiar make. The uppers and sole are one piece of brown leather gathered in over the toe by hemp twine, with an angle-shaped tongue sewed to the uppers, and rising over the instep to keep out the snow. The sides are rudely sewed at the heel like a foreign shoe, but a small semi-circular piece of leather—a prolongation of the sole—is drawn over and sewed half up the back to keep the two sides together and in proper position. Two large nail heads, riveted through the sole, usually form the heel. The shoes are fastened to the feet by thongs of raw hide passing through eyelets in the uppers. These shoes are worn only in winter, when they are padded with a fine grass which grows to a height of about two feet in the marshy lands of Kirin and Hei-lung-chiang. This grass, called *wu-la-ts'ao*, is softened for use by beating with a wooden mallet.

We fared sumptuously in Kirin: frozen fish, including the sturgeon, were exposed in heaps on the streets for sale, and frozen game included partridge, pheasant, deer, antelope and wild boar. The Governor presented me with a deer, an antelope, several kinds of fish (including two sturgeon), a box of frogs and another of sparrows—all frozen.

Two miles to the south-east of the city and in the same bend

of the river is the arsenal, which the director kindly threw open to our inspection. His predecessor, Sung Taotai, who entertained Mr. James and his party in November, 1886, was also present, but he was living at the arsenal as a guest, having been appointed director of a gold-mining semi-official syndicate at San-sing, whither he was bound. After conducting us over the building, where we saw cartridges and gingals being turned out, they insisted, although I had expressly requested that no preparations should be made, on our sitting down to a feast. In spite of the fact that we had just finished our midday meal, we were unable to resist the kindness of our entertainers; but I fear that we failed to do justice to the sumptuous repast which was spread temptingly before us. Every available delicacy was produced; even hot *samshu* and iced champagne were not wanting. On the opposite bank of the river are the powder mills, also surrounded by a high wall. These we did not visit. The breadth of the river between the arsenal and the mills is about 300 yards. Oak charcoal is the principal fuel used in the arsenal; it is said to be much cheaper than coal, which can also be had in abundance. Charcoal costs only one cash a catty, or about $1·68 a ton, whereas coal costs from $3 to $6 a ton, according to quality. The inferior coal is soft and burns rapidly. Both fuels come down the Sungari.

Some four miles to the south-west of the city, and a mile or more from the left bank of the river, rises the Hsiao Ch'ang-pai Shan ("Small Ever-White Mountain") of which the Ch'ang-pai Shan ("Ever-White Mountain"), in the south-east of the province, is the prototype. It is reserved as a hunting ground for the Emperor. This we visited on the 23rd of January, sleighing along the Sungari till it is joined on the west bank by a small tributary, which we ascended for a short distance, and then struck overland to the base of the hill. It is thickly wooded with oak, and here and there a few pines. On sloping ground

arts return empty, or laden with salt from the Liao-tung Peninsula.

From Yi-t'ung Chou the road ascends for twelve miles to he village of Ta-ku-shan, which lies at the base of a hill of the ame name, about a thousand feet high. The lower part of he hill, which we left on our right, was covered with snow. Thereafter the road descends and again ascends over billowy and till it drops into a plain, wherein lies the prosperous illage of Hsiao-ku-shan. To the east of the village is a retty little temple perched on a wooden knoll, with the elegraph line immediately to the east of it. A range of low ills runs north and south to the east of the plain.

On leaving Hsiao-ku-shan we crossed a stream and proeeded west by south over rolling country, backed by low anges of hills. These we surmounted, and put up for the ight at Huo-shih-ling-tzŭ. A number of difficult places for affic presented themselves during the day, and the carts and heir teams on the snow-clad ridge sides looked like a swarm f ants at work.

Descending from Huo-shih-ling-tzŭ the road goes west by outh through confused hills, and, passing Yeh-ho, at one time he capital of a Manchu principality, enters a narrow valley ounded by low hills, which ends at Huang-hua-tien. Before ntering Yeh-ho we crossed the headwaters of the Eastern iao. Thereafter the valley widens, and the road crosses an ndulating stretch of country, backed by a range of hills, then hite with snow. Some of the hills were russet with scrub-oak. assing through the hills we proceeded south, crossing a stream hich afterwards flows past K'ai-yüan Hsien, and then struck outh-west to Wei-yüan-p'u on the southern boundary of the Kirin and Fêng-t'ien provinces. The traffic along the route as enormous, almost as great as between Mai-mai-kai (Fêng-ua Hsien) and K'uan-ch'êng-tzŭ (Ch'ang-ch'un Fu). At

CHAPTER II

RECENT EVENTS IN MANCHURIA

)N the third day of August, 1894, war was formally declared between China and Japan in consequence of utes regarding the kingdom of Corea, and the battle Phyŏnyang, on the 15th of September, and the naval en-ement of Hai-yang, two days later, in both of which the anese military and naval forces were victorious, opened the to the Japanese invasion of Manchuria by land and sea. owing up their successes against the Chinese troops in Corea Japanese crossed the Ya-lu, the boundary of Corea and nchuria, and occupied the city of Fêng-huang T'ing—usually ed Fêng-huang-ch'êng—on the 30th. From Fêng-huang ng they pushed on to Hsiu-yen Chou and Hai-ch'êng Hsien, ch were taken on the 18th November and 13th December re-tively. Some time was occupied in entrenching themselves Hai-ch'êng and in repelling four different attempts made the Chinese to retake the city, and it was not till the 4th March, 1895, that the most desperate struggle in Manchuria decided, and the inland town of Niu-chuang fell into the ds of the Japanese. These were the achievements of the t Army Corps. In the early days of November, 1894, the ond Army Corps landed at P'i-tzŭ-wo and Hua-yüan-k'ou, the east coast of the Liao-tung Peninsula, north of Ta--wan Bay, and took Chin-chou T'ing on the 6th, while t day the Japanese fleet occupied Ta-lien-wan Bay itself, Chinese escaping to Port Arthur, which in turn was

successfully assaulted and occupied on the 21st of November. On the 10th of January, 1895, two columns of the Second Army Corps took the city of Kai-p'ing Hsien, and the port of Newchwang (Ying-kow) was occupied on the 6th of March, the Chinese, with the exception of the troops in the forts who fled overnight across the frozen Liao, having evacuated the latter place the previous day and fallen back on T'ien-chuang-t'ai. The First and Second Japanese Army Corps now joined hands, and on the 9th of March, three days after the occupation of the port by the First Division of the Second Army, three divisions of the combined armies dealt a final blow at the Chinese forces at the town of T'ien-chuang-t'ai, on the right bank of the Liao, thirteen miles north of Newchwang, where the Chinese made their last stand in Manchuria. After the battle the Chinese retreated westwards, and the Japanese, leaving a few scouts to watch the movements of their beaten foe, withdrew to the left bank of the river. Japan had now overrun and occupied the whole of the Liao-tung Peninsula, and when the day of reckoning arrived it formed part of the territorial concessions by China. Article II. of the Treaty of Peace between China and Japan, signed at Shimonoseki on the 17th of April, 1895, contains the following: "China cedes to Japan in perpetuity and full sovereignty the following territories, together with all fortifications, arsenals and public property thereon:—

"(*a*) The southern portion of the province of Fêng-t'ien within the following boundaries:—

"The line of demarcation begins at the mouth of the river Ya-lu, and ascends that stream to the mouth of the river An-ping; from thence the line runs to Fêng-huang; from thence to Hai-ch'êng; from thence to Ying-kow (the port of Newchwang), forming a line which describes the southern portion of the territory. The places above named are included in the ceded

erritory. When the line reaches the river Liao at Ying-kow t follows the course of that stream to its mouth, where it erminates. The mid-channel of the river Liao shall be taken s the line of demarcation.

"This cession also includes all islands appertaining or be-onging to the province of Fêng-t'ien situated in the eastern ortion of the Bay of Liao-tung and in the northern part of he Yellow Sea."

The ratifications of this treaty were exchanged at Chefoo n the 8th of May, 1895; but, previous to the exchange, Russia, 'rance and Germany made representations to Japan, and she as induced to relinquish for a consideration the fruits of her ictory. The following Japanese proclamation was issued on he 10th of May, two days after the exchange of the ratifica-ions:—

"We recently, at the request of the Emperor of China, ppointed Plenipotentiaries for the purpose of conferring with he Ambassadors sent by China and of concluding with them Treaty of Peace between the two Empires. Since then the overnments of the two Empires of Russia and Germany and f the French Republic, considering that the permanent posses-ion of the ceded districts of the Fêng-t'ien Peninsula by the Empire of Japan would be detrimental to the lasting peace of he Orient, have united in a simultaneous recommendation to ur Government to refrain from holding these districts per-nanently.

"Earnestly desirous as we always are for the maintenance f peace, nevertheless we were forced to commence hostilities gainst China for no other reason than our sincere desire to ecure for the Orient an enduring peace. The Governments f the three Powers are, in offering their friendly recommenda-ion, similarly actuated by the same desire, and we, out of our egard for peace, do not hesitate to accept their advice. More-

over, it is not our wish to cause suffering to our people, or to impede the progress of the national destiny by embroiling the Empire in new complications, and thereby imperilling the situation and retarding the restoration of peace.

"China has already shown, by the conclusion of the Treaty of Peace, the sincerity of her repentance for her breach of faith with us, and has made manifest to the world our reasons and the object we had in waging war with that Empire.

"Under these circumstances we do not consider that the honour and dignity of the Empire will be compromised by resorting to magnanimous measures and by taking into consideration the general situation of affairs.

"We have therefore accepted the advice of the friendly Powers, and have commanded our Government to reply to the Governments of the three Powers to that effect.

"We have specially commanded our Government to negotiate with the Chinese Government respecting all arrangements for the return of the peninsular districts. The exchange of the ratifications of the Treaty of Peace has now been concluded, the friendly relations between the two Empires have been restored, and cordial relations with all other Powers have been strengthened.

"We therefore command all our subjects to respect our will, to take into careful consideration the general situation, to be circumspect in all things, to avoid erroneous tendencies, and not to impair or thwart the high aspirations of our Empire."

In accordance with the above proclamation a Convention between China and Japan for the retrocession of Liao-tung (Fêng-t'ien Province) was signed at Peking on the 8th November, 1895, just six months after the exchange at Chefoo of the ratifications of the Treaty of Shimonoseki. By Article I. of this Convention all the territory occupied by Japan in Manchuria, as set forth in Article II. of the Shimonoseki Treaty,

s retroceded to China; Article II. states: "As compensa-
n for the retrocession of the southern portion of the province
Fêng-t'ien, the Chinese Government engage to pay to the
panese Government 30,000,000 Kuping taels on or before
: 16th day of the 11th month of the 28th year of Meiji,
responding to the 30th day of the 9th month of the 21st
ar of Kuang Hsü (16th November, 1895)"; and Article III.
vides that "Within three months from the day on which
ina shall have paid to Japan the compensatory indemnity of
000,000 Kuping taels provided for in Article II. of this
nvention the retroceded territory shall be completely evacu-
d by the Japanese forces". The indemnity was duly paid,
l on 30th November Japan commenced the evacuation of
nchuria, which was completed in the following month.

In the autumn of 1896 some surprise was caused in China
the publication in the Shanghai English press of a transla-
n of what purported to be a Convention (known as the
ssini Convention) between Russia and China for the con-
uction of a railway through Manchuria to connect the
ans-Baikal and Southern Ussuri sections of the Siberian
ilway, and for the leasing to Russia of certain ports in
nchuria and China. As the conclusion of this Conven-
n has been officially denied I will not reproduce it here;
t in September, 1896, an Agreement was entered into be-
een the Chinese Government and the Russo-Chinese Bank
ereby, *inter alia*, the latter undertook to form a company,
be called the Chinese Eastern Railway Company, to con-
uct a railway through Manchuria from the town of Chita,
the Trans-Baikal Province, to a point in the Southern
suri Railway. The general terms of the agreement are
at the shareholders of the said company shall be Russians
d Chinese only; that the gauge shall be the Russian gauge
five feet; that work shall be begun within twelve months

from the issue of an Imperial Decree giving assent to the agreement; that the railway shall be completed in six years from the date on which the land required for the line is handed over to the control of the company; that on the expiration of eighty years from the completion of the line and the inauguration of the railway as a running concern the railway and all railway property shall pass, without payment, to the Chinese Government, who shall not be responsible for any losses which the company may have sustained during that period; and that the Chinese Government have the right, at the expiration of thirty-six years from the inauguration of the railway as a going concern, to take over the railway on due payment, such payment to include the actual cost thereof, together with all debts and interest thereon, but any surplus, after payment to shareholders, shall be added to capital account and shall be deducted from the cost of the line to be paid by the Chinese Government.

In accordance with the above agreement the first sod of the Manchurian Railway was cut, with great ceremony, on the 28th of August, 1897, at a point on the eastern frontier of Kirin and the Primorsk. Chinese, Russian and other officials were present, and telegrams announcing the inauguration of the railway were despatched to China and Russia. Work was now begun on the eastern and north-western frontiers of Manchuria, where lines 110 and 324½ versts respectively had to be built to reach the frontiers of Kirin and Hei-lung-chiang and connect with the Southern Ussuri and Trans-Baikal sections of the Siberian Railway at Nikolsk and Kaidalovo (not Chita, as originally intended), and engineers were sent into Manchuria to find the easiest route across that country. It must be borne in mind that Vladivostock, which would have been the eastern terminus of the Siberian Railway had Russia's railway programme been limited to the above, is closed by ice for several months of the year, and for this and other reasons, which need

not be specified here, the following Agreement between China and Russia was concluded on the 27th of March, 1898:—

"His Majesty the Emperor of China, on the sixth day of the third moon of the twenty-fourth year of Kuang Hsü (27th March, 1898), appointed the Grand Secretary, Li Hung-chang, and the Senior Vice-President of the Board of Revenue, Chang-Yin-huan, as Plenipotentiaries to arrange with M. Pavloff, Chargé d'Affaires and Plenipotentiary for Russia, all matters connected with the leasing and use by Russia of Port Arthur and Ta-lien-wan.

"The Treaty arranged between them in this condition is as follows:—

"Article I.—It being necessary for the due protection of her navy in the waters of North China that Russia should possess a station she can defend, the Emperor of China agrees to lease to Russia Port Arthur and Ta-lien-wan, together with the adjacent seas, but on the understanding that such lease shall not prejudice China's sovereignty over this territory.

"Article II.—The limits of the territory thus leased, for the reasons above stated, as well as the extent of territory north of Ta-lien-wan necessary for the defence of that now leased, and what shall be allowed to be leased, shall be strictly defined, and all details necessary to the carrying out of this Treaty be arranged at St. Petersburg by Hsü Ta-jên (the Chinese Minister to Russia) as soon as possible after the signature of the present treaty, and embodied in a separate treaty. Once these limits have been determined, all land held by Chinese within such limits, as well as the adjacent waters, shall be held by Russia alone on lease.

"Article III.—The duration of the lease shall be twenty-five years from the day this treaty is signed, but may be extended by mutual agreement between Russia and China.

"Article IV.—The control of all military forces in the territory

leased by Russia, and of all naval forces in the adjacent seas, as well as of the civil officials in it, shall be vested in one high Russian official, who shall, however, be designated by some title other than Governor-General (Tsung-tu) or Governor (Hsün-fu). All Chinese military forces shall, without exception, be withdrawn from the territory, but it shall remain optional with the ordinary Chinese inhabitants either to remain or to go, and no coercion shall be used towards them in this matter. Should they remain, any Chinese charged with a criminal offence shall be handed over to the nearest Chinese official to be dealt with according to Article VIII. of the Russo-Chinese treaty of 1860.[1]

"Article V.—To the north of the territory leased shall be a zone, the extent of which shall be arranged at St. Petersburg between Hsü Ta-jên and the Russian Foreign Office. Jurisdiction over this zone shall be vested in China, but China may not quarter troops in it except with the previous consent of Russia.

"Article VI.—The two nations agree that Port Arthur shall be a naval port for the sole use of Russian and Chinese men-of-war, and be considered as an unopened port so far as the naval and mercantile vessels of other nations are concerned. As regards Ta-lien-wan, one portion of the harbour shall be reserved exclusively for Russian and Chinese men-of-war, just like Port Arthur, but the remainder shall be a commercial port freely open to the merchant vessels of all countries.

[1] Dans les cas de crimes graves, tels que meurtre, brigandage avec de graves blessures attentant contre la vie, incendie prémédité, etc., après enquête, si le coupable est Russe, il est envoyé en Russie pour être traité selon les lois de son pays, et s'il est Chinois, sa punition lui est infligée par l'autorité du lieu où le crime a été commis, ou bien, si les lois de l'Etat l'exigent, le coupable est envoyé dans une autre ville ou une autre province pour y recevoir son châtiment.

En cas de crime, quelle qu'en soit la gravité, le Consul et le chef local ne peuvent prendre les mesures nécessaires que relativement au coupable appartenant à leur pays, et ni l'un ni l'autre n'a le droit d'incarcérer ni de juger séparément et encore moins de châtier un individu non-sujet de son Gouvernement.

"Article VII.—Port Arthur and Ta-lien-wan are the points n the territory leased most important for Russian military urposes. Russia shall, therefore, be at liberty to erect at her wn expense forts and build barracks and provide defences at uch places as she desires.

"Article VIII.—China agrees that the procedure sanc-ioned in 1896 regarding the construction of railroads by the hinese Eastern Railway Company shall, from the date of the gnature of this treaty, be extended so as to include the con-ruction of a branch line to Ta-lien-wan, or, if necessary, in iew of the interests involved, of a branch line to the most uitable point on the coast between Newchwang and the Ya-lu iver.[1] Further, the agreement entered into in September, 896, between the Chinese Government and the Russo-Chinese ank shall apply with equal strength to this branch line. The irection of this branch line and the places it shall touch shall e arranged between Hsü Ta-jên and the Board of the Eastern ailroads. The construction of this line shall never, however, e made a ground for encroaching on the sovereignty or integrity f China.

"Article IX.—This treaty shall take full force and effect rom the date it is signed, but the ratifications shall be ex-hanged at St. Petersburg."

On the 28th of March, 1898, the day following the signature f the above Convention, the Russians occupied Port Arthur, he leased territory was subsequently defined by a line drawn rom P'u-la-tien, at the head of an inlet on the west coast, to 'i-tzŭ-wo, a village on the west coast of the Liao-tung Peninsula, nd the neutral zone was determined by a line drawn from the nouth of the Kai-chow River to the south of the district city

[1] By a subsequent agreement this "suitable point" was decided to be Ta-lien-wan and Port Arthur, and no other, and the city of Chin-chou T'ing was excluded from Russian jurisdiction.

of Kai-p'ing Hsien on the west coast to a point on the Ta-yang River and down its right bank to the sea and including the village of Ta-ku-shan on the east coast.

In the spring of 1898, when the Liao River opened, Russian engineers arrived at the port of Newchwang and selected at a spot about three miles higher up the river and on the same bank as the port a site for the terminus of a branch line, to act as a feeder for the line to be constructed to connect Port Arthur and Ta-lien-wan with the Trans-Manchurian Railway. This branch line, which goes east to Ta-shih-ch'iao, is about seventeen miles in length, and on its completion in 1899 the main line was commenced southwards to Port Arthur and northwards towards Moukden. The port of Newchwang was selected as a starting-point because a number of rock cuttings and a considerable amount of temporary bridging had to be carried out in the Liao-tung Peninsula, so that railway materials could not be pushed northwards from Port Arthur or Ta-lien-wan until they were completed. While, therefore, cutting and bridging were proceeding in the south, Chinese labourers from the provinces of Chihli and Shantung were busy building the embankments on the plain to the north and south of Ta-shih-ch'iao, sleepers and rails from Japan and Russia respectively were brought in by steamers of various nationalities, and dragged in trolleys along the branch line by ponies and oxen to Ta-shih-ch'iao whence they were distributed and laid under Russian supervision, and locomotives from the Baldwin Engineering Works, Philadelphia, were being landed and put together by Chinese artisans from Shanghai, Canton and Hong-Kong under American supervision. It was not till the 6th of May, 1899, that the first small locomotive for construction purposes made a trial trip in the direction of Ta-shih-ch'iao and that steam-power was available along the branch feeding line. Faster progress was now made, and on the 23rd of October, 1899, steam

mmunication was established between Ta-lien-wan and the rt of Newchwang. Later, the line from Port Arthur to a-fang-shên, where the track goes eastwards to Ta-lien-wan, as completed, and when the writer left Newchwang in April, 00, that port was connected with Port Arthur and Ta-lien-an in the south and with the city of T'ieh-ling, about forty iles to the north of Moukden, in the north. A description the line from Newchwang to Port Arthur will be found in apter III. From Ta-shih-ch'iao northwards the line passes mediately to the west of Hai-ch'êng and Liao-yang, makes considerable curve to the west of Moukden to avoid the perial tombs of the ancestors of the present Manchu Dynasty, d then goes north to T'ieh-ling, which is the northern terminus the southern section of the line from Port Arthur to the rans-Manchurian Railway at Harbin, near the right bank of e Sungari in the province of Kirin. This line I shall call the entral Manchurian Railway to distinguish it from the Trans-anchurian line from Vladivostock to Kaidalovo on the Trans-aikal section of the Siberian Railway. I have said that the uthern section of the Central Manchurian Railway was com-eted as far as T'ieh-ling in April, 1900; but in many places e line is only temporary, and damage is constantly being done the provisional wooden bridges spanning rivers like the Hai-'êng, T'ai-tzŭ and Hun Ho, which rise during heavy rains and undate the surrounding country. In connection with the uthern section of the Central Manchurian Railway coal mines e worked to the east of the line at Lu-shêng, some three miles the east of Wa-fang-tien in the Liao-tung Peninsula, where e recent daily output has averaged 150 tons, and shafts have en sunk at Mo-ch'i-shan and T'zŭ-êrh-shan, to the north-east the city of Liao-yang, but no coal had been extracted up to pril, owing to the flooding of the shafts. The coal from the mer mines is dirty and requires cleaning and plant has been

ordered for the purpose, while the latter are situated in the neighbourhood of valuable and excellent deposits. Branch lines are in course of construction to both mines. From T'ieh-ling the northern section of the Central Manchurian Railway will pass to the east of Ch'ang-t'u Fu and Fêng-hua Hsien, to the west and north of Ch'ang-ch'un Fu or K'uan-ch'êng-tzŭ, and then go north by east to Harbin, passing about eight and a half miles to the west of Shuang-ch'êng T'ing. The whole of the embankment on this northern section has been constructed, and rails have been laid for some distance south of Harbin, whence it has been fed.

I have stated above that the first sod of the Trans-Manchurian Railway was cut on the 28th of August, 1897, and in the spring of the following year Russian engineers ascended the Amur and Sungari above the city of Hu-lan T'ing, and, landing on the right bank of the latter river, fixed upon a spot about seven miles inland for the junction of the Trans-Manchurian and Central Manchurian Railways. There was one solitary house—a Chinese distillery—on the spot at the time; but at the present moment Ha-êrh-pin, Ha-mo, or Harbin as it is now generally called, is a large town of several thousand inhabitants, consisting for the most part of Russians connected with, and for the protection of, the Trans-Manchurian Railway. Just as the port of Newchwang was selected as a suitable place whence the Central Manchurian Railway could be pushed north and south pending the completion of the necessary rock cuttings in the Liao-tung Peninsula, so Harbin was selected as the starting-point of the Trans-Manchurian Railway in Manchuria, because the east of the province of Kirin bordering on the Primorsk is exceedingly mountainous and presents serious obstacles to the railway engineer. To the west, again, and in the Hei-lung-chiang province, the Hsing-an range of mountains has to be crossed, and these two difficulties compelled access

be opened up with Central Manchuria by the Sungari and arbin. The total length of the Trans-Manchurian Railway om Nikolsk, where it joins the Vladivostock-Habarovsk line, to aidalovo, where it joins the Trans-Baikal line, is about 1,580 rsts, and if we add to this the 102 versts from Vladivostock to ikolsk we have a total from Vladivostock to Kaidalovo of about 682 versts. From Harbin as a centre the Trans-Manchurian ne is being pushed south-east and north-west, and at the end April it had been constructed 160 versts on either side of the nction, to the south-east as far as Yi-mien-p'o, where a blank nearly 200 versts separated it from the railhead of the line hich has been built westwards from Nikolsk for a distance of 0 versts, only ninety-one of which were open for passenger affic when I passed over the Southern Ussuri Railway on the th of May, 1900, and north-west towards the valley of the iver Nonni, a tributary of the Sungari. As the valley of the onni is liable to inundation, special care is being taken in ne construction of the line at this point, and pending the nneling of the Greater Hsing-an Mountains further west, hich will occupy at least a couple of years, a temporary passage ross the range is said to have been found. From the Hsing-an ountains the line will go west, passing to the south of Khailar r Hu-lun-pei-'rh, and cross the Manchurian–Trans-Baikal ontier at Nagadan, and west across the Borza, Turga, Onon, hila, Aga and Ingoda Rivers to Kaidalovo. The construction f the Kaidalovo-Manchurian frontier railway was begun in 897. The total length of the bridging on the above rivers mounts to 2,660 feet, and the cost of this section, including ermanent way, rolling stock and bridging is placed at 8,323,158 roubles for a distance of 324 versts. The cost of ne Nikolsk-Manchurian line, 110 versts in length, is similarly laced at 9,033,987 roubles; but I am unable to give an timate of the cost of construction within Manchuria itself.

By Article VI. of the Russo-Chinese Agreement, quoted above, a part of Ta-lien-wan Bay is to be set apart as a free commercial port. The site of the new town, named Dalny, has been fixed on the south shore of the bay, and a breakwater to shelter shipping from eastern gales and other works are now being built and carried out to render the new harbour safe and commodious. Some account of what is being done in regard to the town itself will be found in the next chapter. The distance from Dalny to Harbin by the Central Manchurian Railway is about 840 versts, making a total of about 1,959 versts from Dalny to Kaidalovo against about 1,682 versts from Vladivostock to Kaidalovo by way of Nikolsk and Harbin.

But there is another railway in Manchuria. When the writer took charge of His Majesty's Consulate in November, 1894, the Imperial Railways of North China had already reached the Great Wall, and a railway embankment had been built for some distance north of Shan-hai-kuan, which lies immediately to the south of the Wall. At that time it was intended to extend the line to Moukden by way of Chin-chou Fu, and even the city of Kirin was talked of as the objective. Funds, however, were wanting, and on occasions sums voted for the railway were withdrawn and appropriated to other purposes. Under these conditions progress was very slow, and, at the end of 1896, although the embankment was completed as far as the Ta-ling River, about twenty miles north-east of Chin-chou, only forty miles of rails were laid to the north of the Great Wall, as far as a place called Chung-hou-so. In 1898 some bridging had been done to the north of Chung-hou-so; but it became evident that if the proposed line were ever to be completed funds must be found for the purpose from more stable sources, and on the 7th of June, 1898, the following Preliminary Agreement was made between the Chinese Administrator-General of Railways within

nd without the Shan-hai-kuan boundary and the Hong-Kong nd Shanghai Banking Corporation:—

"This is a Preliminary Agreement made between His Excellency Hu, Governor of Pekin and Administrator-General f the Imperial Railways of North China within and without he Great Wall, hereinafter called the Administrator-General, f the one part, and the Hong-Kong and Shanghai Banking Corporation representing a British Syndicate hereinafter called he Syndicate, of the other part.

"1. The Syndicate is hereby authorised by the Administrator-General to make arrangements to float and issue, n behalf of the Railway Administration, on the best terms btainable on the market, a sterling loan for the equivalent f about 16,000,000 taels, for the construction of a railway ine from Chung-hou-so to Hsin-min T'ing, and a branch ine to Ying-tzŭ, and for the redemption of existing loans o the Tientsin–Shan-hai-kuan and Tientsin–Lu-kou-ch'iao ines.

"2. The security for the loan shall be the permanent way, olling stock and entire property, together with the freight and arnings of the existing lines between Peking, Tientsin, Tang-ku nd Chung-hou-so, and also of the proposed new lines when onstructed, in addition to the rights of mining coal and iron, hich will be retained by the Railway Administration on each ide of the proposed new lines for a distance to be determined. In the event of default or arrears in payment of interest or epayments of principal, the said railway lines and mines shall e handed over to representatives deputed by the Syndicate, to manage them on their behalf, until principal and interest of the oan are redeemed in full, when the management will revert to the Railway Administration.

"It will, however, be provided that if such arrears are for a mall sum, and it appears desirable to the Syndicate to extend

the due date of their payment for a term not exeeeding three months, it shall be open to the Syndicate to do so.

"In the event of any special circumstances arising necessitating the introduction of important changes by the management aforesaid, these changes shall be effected in consultation with the Administrator-General, and in the best interests of the railway. In the case of war or famine, troops and grain will be transported over the lines on terms to be arranged hereafter.

"No further loan, charge or mortgage shall be charged on the security named above until this loan is redeemed.

"3. During the currency of this loan the principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railway, and may be, in the event of their misconduct or incompetency, dismissed, after consultation with the Chief Engineer. If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans. Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Syndicate.

"In addition to above, a capable and experienced European Railway Accountant shall be appointed to inspect all the accounts of the railways.

"All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong-Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan and Anhui for railway purposes for ten years.

"All expenses of repairing and maintaining lines will be paid from this account, the remainder of which shall then be charged with the service of this loan.

"4. The rate of interest, price, term of years and other particulars shall be left to the Syndicate to arrange on the best terms possible on the market when the moment appears favourable for floating the loan. Instalments of proceeds will be arranged as far as possible to suit the progress of construction and the requirements of the Administrator-General, interest being calculated from the date of such payments. The loan will be redeemable by annual drawings to be scheduled in the final agreement. Besides the drawings so scheduled, the Administrator-General may from time to time, on giving due notification to the Syndicate, call for extra drawings to be held, bonds so drawn being redeemed by the Railway Administration at 20 per cent. premium on their par value.

"5. If it should be found that the loan cannot be floated without the introduction of some special attraction, the Administrator-General shall memorialise the Throne, recommending that a concession of mining rights be granted to the Syndicate at a point or points on the lines, and on terms to be arranged with the Syndicate on the basis of the mining regulations newly established by the Tsung-li Yamên. The requests of the Syndicate will be confined to mines within a distance of five *li* of the railway.

"6. The date of issue of this loan shall be left to the discretion of the Syndicate, to be fixed in accordance with the state of the market, but should it be found impossible to issue it before the 1st day of October next the Syndicate will arrange to advance to the Administrator-General on or about that date an instalment of about 2,000,000 taels on account of, and repayable out of, the proceeds of the loan when floated. The terms of this advance shall be left to the arrangement of the Syndicate on the best terms obtainable, interest not to exceed the rate of 5½ per cent. per annum, and the Syndicate shall be authorised to issue temporary bonds for the amount if required.

"7. For the satisfaction of the investing public who are unacquainted with China, a satisfactory report will be required from District Engineer Mr. J. Ginnell as to the condition and earning power of the old lines, and as to the route, prospects and mineral wealth of the new lines to be constructed, and Mr. Ginnell shall be instructed by the Administrator-General to proceed to London as soon as possible after the signing of this Preliminary Agreement to confer with the Syndicate on these matters.

"8. The terms of the Preliminary Agreement will, immediately after signature, be submitted by the Administrator-General to the Throne for sanction by Imperial Edict, which shall be officially communicated by the Tsung-li Yamên to the British Minister in Peking.

"9. Three months from the date of signature of this Preliminary Agreement shall be allowed to the Syndicate to accept or decline its terms. Upon their confirmation by the Syndicate this Preliminary Agreement shall be replaced by a definite agreement, providing for all details.

"Signed at Peking, this 7th day of June, 1898, being the 19th day of the fourth moon of the 24th year of the Emperor Kuang Hsü."

When the terms of this agreement became known, objection was raised by the Russian Representative at Peking to a mortgage, in default, of the line built and to be built north of the Great Wall, and, after a diplomatic warfare lasting for months, the following Agreement was signed on the 10th of October, 1898:—

"Whereas, on the 7th day of June, 1898, being the 19th day of the 4th month of the 24th year of the Emperor Kuang Hsü, a Preliminary Agreement was signed at Peking between the Administrator-General and the Hong-Kong and Shanghai Banking Corporation, representing a British Syndicate, for a sterling loan for the equivalent of about 16,000,000 taels for

the construction of a railway line from Chung-hou-so to Hsin-nin T'ing and a branch line to Ying-tzŭ, and for the redemption of existing loans made to the Tientsin–Shan-hai-kuan and Tientsin–Lu-kou-ch'iao Railway lines; and

"Whereas in terms of the Preliminary Agreement a period of three months from its date was allowed to the Syndicate to accept or decline its conditions; and

"Whereas the Hong-Kong and Shanghai Banking Corporation, before the expiration of the period named, duly notified the Administrator-General that it is prepared, with certain modifications, to arrange the issue of the loan upon the conditions named in the Preliminary Agreement:

"It is now agreed as follows:—

"1. The Corporation agrees to issue on behalf of the Administrator-General a sterling loan for the amount of £2,300,000, the proceeds of which are to be applied in the order following:—

"(1) To the redemption forthwith or at maturity of the loans and advances specified in the statement attached to this Agreement which have been made by foreign banks to the Tientsin–Shan-hai-kuan and the Tientsin–Lu-kou-ch'iao Railway lines. The Administrator-General hereby certifies that the total amount of the liabilities due by the lines named does not exceed the sum of 3,000,000 taels.

"(2) To the carrying out within a period of three years from the date of this Agreement of certain improvements and additions to rolling-stock on the existing lines between Peking and Shan-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

"(3) To the construction of a railway line from Chung-hou-so to Hsin-min T'ing, and one from a point on that line near Shih-shan-chan to Ying-tzŭ, and of a branch line from Lu-êrh-ho to the collieries of Nan-p'iao.

"The Administrator-General engages that the construction of the new lines here specified shall be completed within a period of three years from the date of this Agreement.

"2. In the event of the proceeds of this loan being insufficient for the completion of the new lines here specified, the Administrator-General will provide or will arrange with the Imperial Government of China to provide funds from other sources sufficient to complete their construction.

"3. This loan shall be a first charge upon the security of the permanent way, rolling-stock and entire property, with the freight and earnings of the existing lines between Peking and Shan-hai-kuan, and on the freights and earnings of the new lines when constructed. The Administrator-General shall, during the continuance of this loan, maintain the railway buildings, works, rolling-stock and dependencies in good condition and order, and shall increase the rolling-stock from time to time to such extent as shall be necessary for the requirements of the traffic.

"Should it be decided hereafter to construct branch lines or extensions connecting with the lines herein named, their construction shall be undertaken by the Railway Administration, and should the funds of the Railway Administration be insufficient for that purpose it shall apply to the Corporation for the same.

"4. The principal and interest of this loan are guaranteed by the Imperial Government of China, and in the event of default in payment of interest or repayment of principal at due date the Corporation shall immediately notify the Imperial Government of China thereof, and the Imperial Government of China will thereupon provide the funds necessary to meet such payment in sterling in London. In the event of the Imperial Government of China being unable to provide the funds necessary to meet a payment of interest or principal when called

upon by the Corporation to do so in terms of this clause, the said railway lines and entire property shall thereupon be handed over to representatives deputed by the Corporation to manage, on their behalf, until principal and interest of the loan have been redeemed in full, when the management will revert to the Railway Administration. It is provided that should arrears of interest or principal be for a small sum, and it appear desirable to the Corporation to extend the due date of their payment for a term not exceeding three months, it shall be open to the Corporation to do so.

"This arrangement, which differs from other contracts in that the Administrator-General retains control of the railway lines so long as the principal and interest of this loan are regularly paid, has been agreed to in consequence of the friendly relations which have long existed between the contracting parties.

"5. No further loan shall be charged upon the security named above, except through the Corporation, until this loan is redeemed, and the Tsung-li Yamên will hand to the British Minister in Peking a written undertaking on behalf of the Imperial Government of China that the railway lines named in this Agreement shall never be alienated or parted with.

"6. During the currency of this loan the Chief Engineer of the railways shall be a British subject. The principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railways, and may be, in the event of their misconduct or incompetency, dismissed after consultation with the Chief Engineer.

"If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans.

"Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Corporation.

"In addition to the above, a capable and efficient European Railway Accountant shall be appointed, with full powers to organise and direct the keeping of the railway accounts, and to act with the Administrator-General and the Chief Engineer of the railway in the supervision of receipts and expenditure.

"7. The railway lines named in this Agreement being Imperial Chinese Government lines, in the event of war or famine Chinese Government troops and grain may be transported over the lines free.

"8. All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong-Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually, payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan and Anhui, for railway purposes for ten years.

"All expenses of working and maintaining the lines will be paid from their receipts and earnings, the remainder of which, together with the provincial funds above named, shall then be charged with the service of this loan. Payments of interest and repayments of principal shall be made in equal monthly instalments, and in accordance with the amounts and dates of a yearly schedule, which will be furnished to the Administrator-General by the Bank. These payments shall be made by the Administrator-General to the Hong-Kong and Shanghai Banking Corporation, Tientsin, in Hongp'ing sycee, sufficient to provide the sterling amount due to the bondholders in terms of the prospectus of the loan, the rate of exchange for these payments being fixed by that Bank as each such payment becomes due. In reimbursement of expenses incurred in connection with the distribution of the service to the bondholders of the principal and interest of the loan, the Hong-Kong and Shanghai Banking Corporation, Tientsin, shall receive from the Railway Adminis-

ration a commission of ¼ per cent. on the annual loan service, which will be included in the yearly schedule for the same.

"9. The term of the loan shall be forty-five years, and, subject to the modification mentioned hereinafter, repayment of principal shall be made, so far as regards the bondholders, in forty equal annual instalments, commencing with the sixth year.

"10. Interest on the loan shall be charged at the rate of 5 per cent. per annum on the nominal principal, and shall be calculated on the balance of such principal at any time outstanding, payments of interest being made by the Administrator-General in accordance with the amounts and dates specified in the yearly schedule to be provided.

"11. The loan will be redeemed by annual drawings in London as provided for in the prospectus. Besides the drawings as provided for, the Administrator-General may, on giving three months' notice to the Corporation, call for extra drawings to be held for any amount. Bonds so drawn to be redeemed by the Railway Administration at 20 per cent. premium on their par value. Any such extra drawings must take place on the date of the ordinary drawing provided by the prospectus.

"In the event of such extra drawings taking place, subsequent payments of interest will be adjusted in the yearly schedule to be provided, but repayments of principal shall continue unaltered in terms of clause 9 of this Agreement until the loan is redeemed.

"The Imperial Government of China hereby engages that this loan shall not be redeemed or converted otherwise than as herein provided.

"12. The price agreed upon for this loan is 90 per cent. net of the nominal principal, but should an unfavourable state of the market prevail at the time of issuing the prospectus, the Corporation is hereby authorised to reduce the price of the loan,

at its own discretion, to not less than 88 per cent. net to the Railway Administration.

"13. The Corporation are hereby authorised to issue to subscribers to the loan bonds for the total amount of the loan in pounds sterling, in such form and for such amounts as shall appear desirable to the Corporation, and the Minister for China in London will seal all such bonds with his official seal, as evidence that the Imperial Government of China is bound thereby. Each such bond shall bear the following clause:—

"'The Imperial Government of China, pursuant to an Imperial Edict, dated [27th November, 1898], unconditionally guarantees and declares itself responsible for the payment of the principal moneys and interest hereby secured, and in faith thereof it has specially authorised the Chinese Minister in London to sign this bond with his official seal.'

"14. All bonds and coupons and payments made and received in connection with this loan shall be exempt from Chinese taxes and imposts for ever.

"15. All details necessary for the prospectus and connected with the service to the bondholders of the interest and repayment of principal of this loan, not herein explicitly provided for, shall be left to the arrangement of the Corporation, who are hereby authorised to issue a prospectus of the loan as soon as possible after the signing of this Agreement.

"The Tsung-li Yamên will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action.

"16. The loan shall be issued to the public as soon as possible after the signing of this Agreement, and shall date from the first day of the month of its issue. Payment of the entire proceeds will be made in London to the order of the Administrator-General not later than the 31st day of March, 1899; of the above proceeds, the Corporation will advance to the

rder of the Administrator-General in London, on or before he 31st day of October next, the sum of £250,000; this dvance will bear interest at the rate of 5½ per cent. per annum ntil such time as the first instalment of the loan proceeds shall e available, when it shall be deducted from those proceeds by he Corporation.

"17. In the event of an unfavourable state of the market endering the issue of this loan and the payment of its pro- eeds to the Railway Administration impossible on the terms amed without loss to the Corporation, the Corporation shall e granted such extension of time for the performance of its ontract with the Administrator-General as the circumstances lemand, any advances or instalments of proceeds already made o the Railway Administration being in that case treated as egards payment of interest, repayment of principal, security, nd Imperial Chinese Government guarantee in terms of this resent Agreement and as forming part of the principal amount f this loan. Similar extension of time for the issue of this oan and payment of its proceeds shall also be granted in the vent of the Deutsch-Asiatische Bank, Berlin, objecting to its ssue before the month of April next, in accordance with the terms of clause 9 of the Agreement for the Chinese Imperial Government 4½ per cent. sterling loan of 1898.

"18. Immediately after the signature of this Agreement, and before the issue of the prospectus of the loan to the public, the Administrator-General will memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement, the Imperial Edict, so received, being then communicated officially and without delay by the Tsung-li Yamên to the British Minister in Peking.

"19. The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers and discretions to any British Company, Directors or Agents, in consul-

tation with the Administrator-General, with or without power of further transfer and sub-delegation.

"20. This Agreement is executed in quadruplicate in English and Chinese, one copy to be retained by the Administrator-General, one by the Tsung-li Yamên, one by the British Minister in Peking, and one by the Corporation. Should any doubt arise as to the interpretation of the contract, the English text shall be accepted as the standard.

"Signed at Peking by the contracting parties, this 25th day of the 8th month of the 24th year of the Emperor Kuang Hsü, being the 10th day of October, 1898, Western Calendar."

Not only was an alteration made in the Agreement between the Chinese Administrator-General of Railways and the Hong-Kong and Shanghai Banking Corporation, but the whole question of railway concessions was opened up so far as Great Britain and Russia were concerned, and resulted in the following Declaration and Additional Note, which were signed and exchanged on the 28th of April, 1899, by the duly-appointed Representatives of the two Powers:—

"Great Britain and Russia, animated by a sincere desire to avoid in China all cause of conflict on questions where their interests meet, and taking into consideration the economic and geographical gravitation of certain parts of that Empire, have agreed as follows:—

"1. Great Britain engages not to seek for her own account, or on behalf of British subjects or of others, any railway concessions to the north of the Great Wall of China, and not to obstruct, directly or indirectly, applications for railway concessions in that region supported by the Russian Government.

"2. Russia, on her part, engages not to seek for her own account, or on behalf of Russian subjects or of others, any railway concessions in the basin of the Yang-tsze, and not

to obstruct, directly or indirectly, applications for railway concessions in that region supported by the British Government.

"The two contracting parties having nowise in view to infringe in any way the sovereign rights of China or existing treaties, will not fail to communicate to the Chinese Government the present arrangement, which, by averting all cause of complications between them, is of a nature to consolidate peace in the Far East, and to serve the primordial interests of China herself."

Then comes the Additional Note :—

"In order to complete the notes exchanged this day respecting the partition of spheres for concessions for the construction and working of railways in China, it has been agreed to record in the present Additional Note the arrangement arrived at with regard to the line Shan-hai-kuan–Newchwang, for the construction of which a loan has been already contracted by the Chinese Government with the Shanghai–Hong-Kong Bank, acting on behalf of the British and Chinese Corporation.

"The general arrangement established by the above-mentioned notes is not to infringe in any way the rights acquired under the said Loan Contract, and the Chinese Government may appoint both an English engineer and a European accountant to supervise the construction of the line in question and the expenditure of the money appropriated to it.

"But it remains understood that this fact cannot be taken as constituting a right of property or foreign control, and that the line in question is to remain a Chinese line, under the control of the Chinese Government, and cannot be mortgaged or alienated to a non-Chinese company.

"As regards the branch line from Siaoheichan (Hsiao-hei-shan) to Sinminting (Hsin-min T'ing), in addition to the aforesaid restrictions, it has been agreed that it is to be constructed by China herself, who may permit European—not necessarily

British—engineers to periodically inspect it, and to verify and certify that the work is being properly executed.

"The present Special Agreement is naturally not to interfere in any way with the right of the Russian Government to support, if it thinks fit, applications of Russian subjects or establishments for concessions for railways, which, starting from the main Manchurian line in a south-westerly direction, would traverse the region in which the Chinese line, terminating at Sinminting and Newchwang, is to be constructed."

I have already stated that Chung-hou-so is situated forty miles to the north of the Great Wall, and this and the extensions to Hsin-min T'ing and the port of Newchwang (Ying-tzŭ or Ying-kow), amounting to 258 miles, give 298 miles of Chinese railways built and projected in Manchuria. To this has to be added the projected branch to the Nan-p'iao coal mines, making a total length of 328 miles. The line from Chung-hou-so to Newchwang was completed with temporary bridging early in the present year, and a certain amount of passenger traffic was being carried on between Tientsin and Newchwang when I left the latter in the beginning of April. At that time, too, the embankment of the extension to Hsin-min T'ing was completed from Kou-pang-tzŭ, about fifty-six miles from Newchwang and the place ultimately selected as the junction of the Newchwang and Hsin-min T'ing lines instead of Shih-shan-chan or Hsiao-hei-shan; but rails to complete the work had not yet arrived. I understand that the estimated cost of the extensions from Chung-hou-so to Newchwang and Hsin-min-T'ing is put at taels 9,800,000, and of the branch to the Nan-p'iao mines at taels 1,000,000, a total of taels 10,800,000. These lines, together with certain improvements and additions to rolling stock, had to be completed by the 10th of October, 1901. These Chinese railways are built with the English gauge, and I have been assured by experts, who had no interest what-

rer in their success, that they are as strongly constructed as ny English line.

The terminus of the Chinese railway is on the right bank f the Liao, below Newchwang, and Japanese and British Con-essions have been secured to the east of the railway station, hile the terminus of the branch line to the Central Manchurian ailway is three miles above the town, on the left bank, where a arge Russian railway settlement has been built.

In dealing with the trade of Manchuria in Chapter X., I ave pointed out the serious disadvantages under which it abours, due in a great measure to climatic conditions, the ntire absence of properly constructed roads, and the slow and lumsy methods of transport. I have said that it is practically mpossible to sow, reap and export beans, the most valuable rade product of the country, in the same year, and that they ave to be carried by cart and stored at depôts on the waterways o await shipment when the ice breaks up in the following spring. n this way capital is locked up for months, and heavy storage harges are incurred. Moreover, the great commercial water-oute, the Liao River, is navigated only for 200 miles of its ourse, and to bring produce from the far interior to the epôts necessitates a long and expensive overland carriage, to hich has to be added later a water freight by no means light. nquiries which I made in 1899 showed that the lowest cart nd boat rates amounted to sums equivalent to 3d. and 1¼d. espectively per ton per mile, and railways should have little ifficulty in competing with these rates.

There can, I think, be little doubt that the Russian Central anchurian Railway, stretching as it will from the Sungari to he commercial port of Dalny—a port open all the year round—ill best serve the country to the east of the Liao and even the st of Mongolia, for, although the Chinese railway to the west f the Liao will pass through a fertile tract, that tract is limited,

and even at Hsin-min T'ing it will still be far removed from the great agricultural centres to the north, which could more conveniently send their produce to stations on the Central Manchurian Railway. Moreover, the Chinese railway connects with Newchwang, Tientsin and Ch'in-wang-tao, which are certainly ice-bound for varying periods in winter. If the Central Manchurian Railway succeeds in securing the bulk of the products for export at Dalny, it cannot, I think, fail to carry imports into the interior from that port, for, having travelled over the whole of the Siberian Railway to Moscow, I am of opinion that it will never be a highway for foreign goods intended for Manchuria and China. I may be wrong, but that is the conclusion at which I have arrived. It has been argued that the market of Manchuria is established at Newchwang, and that it is a very difficult matter to divert trade to a new channel. The argument would be perfectly sound if the permanent Chinese residents in Newchwang were the traders; but they are not. The bulk of the trade of Newchwang, whether in exports or imports, is done by Chinese merchants from the south, who reside at the port during the open season and return home over winter. They are mere birds of passage, who flock to Newchwang because it is as yet the only port in Manchuria open to trade and steamer traffic; but when another port is opened, where trade can be carried on summer and winter, I see no reason why they should not resort to that port if they can pick up profits. Some people have pinned their faith to Ch'in-wang-tao, but it cannot be argued that the climatic conditions are as favourable as those of Dalny. Apart altogether from the rival claims of these ports to the trade of Manchuria, one thing is certain, and it is that the introduction of railways will cause an enormous development of the export trade of the country and a corresponding increase in imports, and that the British manufacturer should be able to take his fair share in this development, provided equality

of treatment in the matter of taxation and railway rates is assured.

I have described above how Manchuria was visited by war in 1894-95, and in 1899 pestilence in the shape of bubonic plague claimed a considerable number of victims. The first case that came to the knowledge of the medical practitioner at Newchwang occurred early in July in a village just outside the walls of the town. It was impossible to trace with any degree of accuracy the history of the case; but everything seemed to point to its importation by junks plying from Swatow or Hong-Kong, which were infected at the time, and between which and Newchwang there is constant communication. It soon became certain that the disease had assumed an epidemic form; but it took some two months to induce the Chinese Government to recognise the gravity of the situation and the serious injury to trade and revenue which inaction was causing. At last they subscribed a sum of Haikwan taels 10,000, to enable measures to be taken to stamp out the disease and cleanse the town. This sum was more than covered by the Chinese Eastern Railway Company for the protection of the Chinese coolies engaged on railway construction, and was followed later by a much larger subscription by the same company. The foreign community of the port also subscribed most liberally, and the whole of the contributions were placed in the hands of an International Sanitary Board, of which the writer was appointed chairman. By this time, however, some two thousand victims, mostly young men, had succumbed to the disease, which was beginning to show signs of abatement. On taking office the Sanitary Board at once secured by telegraph the services of fifteen Japanese doctors and a Japanese sanitary engineer, prepared plague and observation hospitals, purchased a plague cemetery, as well as a separate cemetery for the poor, divided the town into wards, which were daily visited by the medical staff in search of cases, established

dispensaries and offices in each ward, where application could be made for assistance and medicines free of charge, not only in plague but in all cases of sickness or disease, buried all exposed coffins and bodies in and in the immediate neighbourhood of the town, disinfected all infected houses as far as possible, handed over the streets and drains to a large staff of workmen under the superintendence of the sanitary engineer, and took every other possible measure to stamp out the dreaded pest. Three Russian doctors also took part in the work as volunteers. It was expressly stipulated by the Chinese Government that no compulsory measures should be taken; but Chinese notices were printed and posted in thousands throughout the town, warning the inhabitants of the gravity of the disease, and advising them to submit, for their own benefit, to the operations of the Sanitary Board, and Chinese booklets in the same sense were distributed by the medical staff during their house-to-house visitations. I have said that before the Sanitary Board assumed office the plague had shown signs of abatement, and only eight or nine cases, latterly of the pneumonic form, were actually treated by the medical staff, the last case occurring on the 9th of December. As the abatement of the disease seemed to coincide with the advent of cool weather, the medical staff were directed, at my request, to carry out a series of experiments on the effect of low temperatures upon plague bacilli, which had been procured from the cases treated. As the winter temperature of Newchwang falls generally below zero Fahr. every year, it seemed to be essential that these experiments should be carried out as a guide to the Sanitary Board in the steps to be taken to prevent a recrudescence of the disease. The following results, although obtained from experiments made with the plague bacillus in an *artificial* state of existence, may add something to the life-history of this interesting vegetable parasite:—

1. The bacillus in a dry state promptly dies.
2. In a semi-dry state it is destroyed (in the incubator) at a temperature of 54° Fahr. in from fourteen to eighteen hours.
3. In prepared nutrient medium (bouillon and agar-agar) it will grow and multiply in a temperature of from 45° to 65° Fahr.
4. The most suitable temperature for its growth and development is the temperature of the human body.
5. Whether in prepared nutrient medium or in a semi-dry state it is not destroyed by exposure to the atmosphere at a temperature of −12° Fahr.
6. In prepared nutrient medium it is destroyed in from seven to eight hours by exposure to sunshine at a temperature of 44° Fahr.
7. In a semi-dry state it is destroyed in from six to seven hours by exposure to sunshine at a temperature of 44° Fahr.
8. In distilled water at a temperature of 34° Fahr. it grows slowly, and continues to multiply even after fourteen days; but, owing to insufficient nutrient matter, it undergoes very remarkable involutions — a sign of diminishing virulence.
9. After multiplication the parent bacillus dies in from seven to eight days.

The disease spread for about forty miles to the north and south of the port; but it never obtained a footing in the far interior. Newchwang stretches for about three miles along the alluvial bank of the Liao, with a width of from a half to three-quarters of a mile a few feet above high-water mark, and the filthy condition of its streets held out every inducement to the plague to stay; but from November to April it is blessed with a dry, cold temperature and abundance of sunshine, which may have

disastrously affected the bacillus in its natural condition in the soil, and greatly assisted the efforts of the Sanitary Board to give it its quietus. At any rate, the plague was stayed early in December, and there had been no recrudescence when I left Newchwang in the middle of April, 1900; nor have I heard of any fresh outbreak since that time. With the exception of several Russians, who are supposed to have contracted the disease while travelling, and three or four of whom died in hospital at the Russian railway settlement above Newchwang, none of the foreign community of the port was attacked.

Manchuria has again become the theatre of military operations. In consequence of Chinese forts having opened fire on Russian shipping on the Amur and the bombardment of the town of Blagoveschensk, three Russians columns, starting from the Trans-Baikal province, Blagoveschensk and Habarovsk, have occupied Tsitsihar, the capital of the province of Hei-lung-chiang. The capital of the Kirin province has also been taken possession of by Russian troops; the port of Newchwang fell into Russian hands on the 5th of August; and Moukden was occupied on the 1st of October. Russia now holds the capitals of the three provinces. Whatever the result of the present crisis in China may be, it will not be denied that Manchuria has had her fair share of the troubles which have beset the Celestial Empire from 1894 to 1900.

CHAPTER III

PORT ARTHUR AND ALONG THE EASTERN FRONTIER OF MANCHURIA

WHEN I had ascertained that my furlough, for which I had been waiting a year, would be granted in the g of 1900 I set about discovering how much of the Siberian vay was actually completed, and whether it would be ɔle to return to England by this route with my wife and nine years of age. The information obtainable was very ɛcting: some Russians in Newchwang assured me that ine from Stretensk to Lake Baikal had just been finished, hat I could depend on being able to travel by rail, with the ɔtion of the crossing of Baikal, from Stretensk to Moscow St. Petersburg, while others stated that there was still a derable hiatus between Stretensk and the lake, that it would ɛcessary to ride or drive, and that travelling by construc- trains, which alone would be available, would be of the ɪest description. Open trucks, I was told, might be our

But one Russian gentleman told me that he had actually lled from Baikal to Stretensk by rail in the autumn of , and that, in all probability, great improvements had effected since that time. This settled our homeward . For myself it mattered not, as I intended to follow ɾack of the Manchurian or Chinese Eastern Railway from Arthur to the Trans-Baikal province, taking advantage, uch as possible, of the sections already completed and in e of construction. At the same time I attempted to

work up a smattering of Russian; but I may say here that, although I succeeded in being able to express my actual wants, I found that my vocabulary, when really put to the test, was totally insufficient to grapple with the difficulties encountered or to elicit desirable information. As my Russian colleague at Newchwang, who was also proceeding on furlough, promised to accompany me, while our respective families were to meet at Vladivostock and travel together by rail and river to Stretensk, I laid little stress on a knowledge of Russian. My knowledge of Chinese would make the Manchurian part of the journey comparatively easy. When the above arrangement was arrived at, I procured from His Majesty's Minister at Peking two passports, one for my family and another for myself, both of which were duly viséed by the Russian Legation prior to transmission. Meantime my colleague informed me that he was unable to travel through Manchuria, but that he would accompany his family to Vladivostock, where, on a date to be fixed by him, he would meet my family and travel with them to Stretensk. My family then left for Shanghai to await the announcement of the date, and I handed over charge to my successor on the 8th of April. On the morning of the 10th I started for Port Arthur by rail, and arrived there on the afternoon of the 11th. Next morning I left Port Arthur again by rail, on my projected long journey through Manchuria; but on arrival at Newchwang, on the evening of the 13th, I was rather surprised to learn that my fellow-traveller-to-be had again changed his mind and his plans, and that he now proposed to return to Russia by way of Peking, Kalgan and Kiakhta. I was also told that washouts had occurred in the line between Newchwang and T'ieh-ling, which was then the rail-head north of the port, and that if I wished to travel by train I must wait till the necessary repairs were effected. My plans, like the line, were now blocked; my wife's Russian

vocabulary was more limited than my own, and it was utterly impossible for her to proceed to Stretensk by way of Vladivostock, Habarovsk and Blagoveschensk without assistance; while the railway on which I had depended for a long lift at the outset of my journey was unavailable for some indefinite period. There was no help for it but to proceed to Shanghai, thence take steamer to Vladivostock, and travel round, instead of through, Manchuria. Before attempting a description of this journey, to which this and the following chapter will be devoted, I must say a few words regarding my trip to Port Arthur.

On the evening of the 9th of April, 1900, I rode in a Chinese cart to the Russian railway station at Niu-chia-t'un, where I dined with Mr. Titoff, the resident engineer. This gentleman, to whom I am indebted for many kindnesses, not only to myself but also to friends who had from time to time requested my assistance in procuring permission to travel on the line, had kindly placed at my disposal a comfortable carriage in the train which was to start early next morning. At dinner I met the newly-appointed Financial Commissioner at Port Arthur, who spoke English fluently, and manifested a great interest in the financial condition and taxation of Manchuria, more especially the taxation of trade. He was a fellow-passenger to Port Arthur, and lost no opportunity of discussing with me the future commercial probabilities of the Manchurian railway. On the probable strategical value of the line we said nothing. The total length of the track from Newchwang to Port Arthur is 275 versts, or, roughly speaking, 183⅓ miles. We started at seven o'clock, and after a run of one hour and forty-five minutes over flat country reached Ta-shih-ch'iao, a large station with numerous sidings on the main Manchurian line, seventeen miles east of Newchwang. Owing to heavy rains the previous day and the lack of satisfactory ballast the track was soft, and the train

had to be run with care. Before arrival at the station, which lies about half a mile to the north-west of the village after which it is named, we crossed a stream, flowing south, by a temporary wooden bridge, close and to the south of which pile-driving was proceeding, and the granite abutments for the iron roof of a small bridge were being built. To the east of Ta-shih-ch'iao a range of low hills runs north towards Hai-ch'êng and south to the Liao-tung peninsula, while to the west a few isolated hills dot the plain. To the eastern face and near the summit of the highest of the latter clings Yao-chou Miao—a temple of several courtyards—named after the hill on which it is built, Yao-chou-shan. The main line runs north and south on the flat between the range and the isolated hills; but the latter quickly disappear, leaving a low, bare plain stretching westward to the sea. A dreary-looking waste now; but in the summer and autumn, when I have visited it, this plain is a centre of activity, for here it is that the greater part of the salt consumed in Manchuria is manufactured. A light line was laid down from the station at Ta-shih-ch'iao to a hill half a mile to the north-east, whence ballast was being excavated. We were now joined by another passenger, a Russian doctor from one of the railway hospitals, bound for Port Arthur. He was going to attend a meeting of a society—botanical, I imagine—recently formed at Port Arthur, and he was very keen on the question of the afforestation and beautifying generally of the bare hills surrounding Russia's new naval port. He was also anxious to find a spot on the Liao-tung coast for a sanatorium, which would rival the summer health-resorts of China and Japan.

The first station south of Ta-shih-ch'iao is Hai-shên-chai, a little to the south-east of a village of that name nestling at the base of a hill, for the western flat has now given place to hilly ground. The station lies on the right bank of the Kai-chow River, almost mid-way between the sea and

e district city of Kai-p'ing Hsien, which is concealed by ls to the east. This river, with its sandy bed one hundred rds in width, becomes during rains a roaring torrent, and has more than one occasion swept away the piles of sleepers ıich were doing duty for piers. Stones and rails supported the ıck when we crossed the river; but a five-arched bridge with ınite piers was in process of construction. Between the Kai-ow River and Hsiung-yao, a distance of twenty miles, two eams rising in the hills to the east cross the track on their y to the west coast. The five-arched stone bridges over ese were completed, and the banks of the streams above the dges were carefully paved with stone to keep the floods thin bounds. Hsiung-yao, at one time the seat of a Depart-nt, and later of a District, Magistrate, as well as the head-arters of a Deputy-Lieutenant Military Governor, afterwards ınsferred to Chin-chou T'ing, is a small walled town a mile the west of the railway. Its inhabitants are mostly Banner-n, and its defences are in cl ge of a Manchu Military ımmandant of the second class (Fang Shou Yü). The town s in a plain stretching westward from the railway to the sea d eastward to low hills backed by a higher range running rth and south. In the eastern part of the plain are a number bare, isolated rocks, on the southernmost of which perches a ıall pagoda. The run from the Kai-chow River to Hsiung-o occupied one hour and fifteen minutes. The Hsiung-yao ıver, which crosses the track opposite the town on its way estward to the sea, has a wide sandy bed, necessitating a long idge of some ten spans, in course of construction. This is e longest bridge on the line, and here stone and gravel ınking were being carried out to confine the river to its bed. ıuth of Hsiung-yao the hills close in on both sides, forcing e railway into the intervening valley and here and there to the hillsides to the east, where one or two rock scarpings

several hundred yards in length had been executed. At twelve minutes past noon we arrived at Hou-wa-fang-tien, a neat little station in the valley, where we stopped for ten minutes, and then proceeded south, the rails being now laid in the bottom pending the completion of a number of bridges across gullies in the hills to the west. At one point in the valley I counted as many as four bridges visible at one time. At Hou-wa-fang-tien we passed a construction train going south, laden with dressed stones to be used in bridging a number of small streams crossing the track between Hou-wa-fang-tien and Ch'ien-wa-fang-tien or Nan-wa-fang-tien, which are about twenty-seven miles apart. At all these streams stone embanking had been carried out to the east of the bridge sites. Half a mile to the north of Nan-wa-fang-tien, which we reached at 6 P.M., and where we remained overnight, a branch line was being built eastward to the Lu-shêng coal mines, three miles distant. These mines are generally known as the Wa-fang-tien coal mines. Earlier in the day a construction train with rails and coal had passed us at Hsiung-yao bound north. Nan-wa-fang-tien is one of the largest stations on the line, with numerous sidings, engine sheds and quite a number of artisans' cottages. Half a mile to the east the Russian flag was flying over a prominent building. I may state here that we carried our own bedding and provisions; but the doctor on our arrival at Nan-wa-fang-tien set out on a foraging expedition, and soon returned with a tureen of hot cabbage soup, to which, as the evening was cold and wet, we all did ample justice. We completed the repast with a cold roast fowl and cold beef provided by me, and glasses of hot tea *à la Russe*. North of Nan-wa-fang-tien scrub-oak put in an appearance, an indication that we were passing through the districts of sericulture in Southern Manchuria.

We left Nan-wa-fang-tien at 5.30 A.M. on the 11th of April,

ter an hour's run past villages and farmhouses nestling
ees as yet bare of foliage, reached P'u-la-tien, the northern
ry on the west side of the territory leased to Russia by
The boundary line passes through P'i-tzŭ-wo, on the
side of the peninsula. To the immediate north of
ien, where I noticed for the first time the name of the
posted in Russian, preparations were being made for
g a stream flowing west. South of Nan-wa-fang-tien
ntry opens out, and consists of rolling land with hill
in the distance. Fifteen miles south of P'u-la-tien we
the Hung-kou-ho, a stream also flowing west, where
re banking and bridging were progressing. Two and a
les more brought us to the station of San-shih-li-p'u,
re reached at eight o'clock. Passing the station of Shih-
-tzŭ, with the sea visible a few miles to the west, we crossed
e bed of a stream, which has to be bridged, and arrived
station opposite the city of Chin-chou T'ing, which lies
l two-thirds mile to the west, at the base of hills on the
ide of Chin-chou Bay. In the lease of the territory to
it was stipulated that the Chinese should continue to
jurisdiction within the walls of this city, and difficulties
quently arisen in consequence of this arrangement, for in
n the Chinese are under Russian rule, but by entering the
hey become amenable to Chinese authority. Chin-chou
y large station, with a short branch line to brickfields on
t side—a concession granted by the Russian Government
Chinese Eastern Railway Company in connection with
e of the new town of Dalny about to be built on the
hores of Ta-lien-wan Bay. Quite a number of houses
eady been built at the brickfields, and others were in
of construction. The city of Chin-chou lies at the north
the narrow neck of land which separates Ta-lien-wan and
ou Bays, and the sea is visible from the railway on

both sides, the country being flat from sea to sea. At most of the stations along the track, and especially at Chin-chou, Chinese hawkers were busy catering for passengers: hard-boiled eggs, tinned meat, fish and fruit, fresh pears and oranges, sunflower and pine seeds, and occasionally aerated waters were to be had. On my return journey from Port Arthur reliefs for the military guards along the line travelled by the same train, and it was very interesting to watch the way in which these soldiers fraternised with the Chinese employés of the railway: they shook hands cordially and slapped each other on the back as if they had been life-long acquaintances. The friendship did not appear to be always disinterested, however, for the soldier not unfrequently produced an empty *vodka* bottle and a coin, both of which were slipped into the hands of the Chinese friend, who might be seen speeding hot foot to the nearest dram shop or itinerant spirit vendor. A number of small boys seemed always to be on the outlook for errands of this description, and were not unfrequently rewarded with the offer of the dregs, which were usually declined, the wage for their labour being doubtless recouped by the difference between the actual cost and the price charged to the buyer. These soldiers took every possible opportunity of eating and drinking, and if they were not devouring loaves of bread, they were emptying bottles without the intermediary of glasses. One thing must be said for the Russian soldier: his pay may be small, but his generosity is unbounded. I have seen him part with his loaf to a Chinese beggar—who was well represented along the line—and appear delighted that the meal was appreciated. Many of the soldiers had a smattering of Chinese, and one man—it was at the end of the journey and after numerous refreshers—endeavoured to harangue a crowd in their own tongue. His speech created considerable hilarity among his audience, and he seemed gratified at his success.

At Ta-fang-shên, four miles south of Chin-chou, a branch

eaves the main line and goes east, skirting the southern shore f an arm of the sea forming the northern part of Ta-lien-wan lay, to the village of Ta-lien-wan, where a pier has been built or the accommodation of steamers carrying materials for the ailway. Ta-lien-wan Bay is free of ice during the winter ionths, so that materials can be landed there when the port of Newchwang is closed. The branch line is about three miles in ength. On leaving the narrow neck of land at Ta-fang-shên he main line, after skirting the western end of the middle arm f the sea in Ta-lien-wan Bay, goes west by south for a distance f ten miles to the station of Nan-san-shih-li-p'u, to the south f which a branch ten miles long was being constructed eastward o the new port of Da ny in the south of the bay. To the rest and south of the bay the country is broken and hilly, and he track has been carried along the western shore, in one or wo places being built upon the sandy beach within a few yards f the sea, whence it ultimately crosses the south of the peninula and descends into Port Arthur, which we reached at 3.30 .M. on the 11th of April.

Port Arthur, until little more than two years ago China's reatest naval station in the north, is an oval inlet of the sea ome two miles long from east to west and a mile from north to outh, surrounded by high hills, and entered on the south side y a narrow channel guarded at the south end by a couple of eefs, and protected against storms by a spit of land which runs liagonally across its northern end. A line drawn from this hannel to the extreme west of the town, which occupies the ace of the hills on the north-east side of the inlet, divides the atter into two unequal parts, known respectively as East and West Bays. The former is small, and has accommodation for very limited number of vessels, while the latter is much arger, but shallow and unnavigable. At the time of my visit here were two dredgers in the harbour, and I was informed

that West Bay was to be deepened throughout and set apart for a man-of-war anchorage, and that new Government offices were to be built on the north-west side of the inlet overlooking West Bay. The latter are very much needed, for at present they are scattered about the town, which consists of a collection of heterogeneous buildings, setting all sanitary laws at defiance, with streets and alleys in the worst possible condition. I was very much surprised at the neglect of these thoroughfares, but I had not then seen the streets of the principal cities of Eastern Siberia. To the east of the town are the arsenal and Government workshops and stores, and on the opposite side of East Bay there is a dock of considerable size. The railway enters the town at the extreme west end, and at the terminus there is a row of sheds for locomotives. The red-brick station was all but completed, and on high ground to the east of the terminus were the offices and residences of the officials of the Chinese Eastern Railway—the most imposing buildings in the town. Between the railway and higher ground to the west there is a large expanse of marshy ground which used to be flooded at high tide, but is now separated from the sea by a dam. The whole of this space, many acres in extent, is to be filled in and utilised. There is a branch of the Russo-Chinese Bank, besides several foreign stores, in the town. The hills overlooking the entrance channel bristled with forts, as also the spit of land above referred to, and I was informed that there are many more batteries on the hills than meet the eye, and that the place is impregnable; but I assured my Russian informants that I was no judge of these matters.

From Port Arthur I wished to make a trip to the site of the projected new town of Dalny in the south of Ta-lien-wan Bay, the laying out of which is in the hands of the railway company, and I called upon the chief engineer at Port Arthur with a view of getting a passage in the railway launch which

ns between these two places. He received me courteously, nt regretted that owing to bad weather the launch was not ming with regularity, and he could not say when the vessel uld again leave Port Arthur. Under the circumstances I olved to leave next morning for Newchwang, and he readily ceded to my request for a passage by train, and added that he car would be at my disposal from Newchwang northwards Tieh-ling.

I learned from other sources what was being done at Dalny. plan of the streets, etc., of the town had been drawn up and bmitted for the approval of the Russian Minister of Finance, whom the railway company is responsible; waterworks and ctric lighting were well in hand; residences had been built the engineers; and a large hotel was almost completed. The s would in due course be put up to public auction at reserved ices contingent on the expenses incurred by the railway com-ny, and the highest bidder, no matter what the nationality, uld be declared the buyer or lessee.

I left Port Arthur next morning at 6.50 o'clock, stayed ernight at Nan-wa-fang-tien, and arrived at Newchwang at P.M. on the 13th of April. It would be unfair in the present complete state of the line to pass judgment upon it, even re I competent to do so; but this much I think I may safely y. Although stone ballast was being prepared where rock uttings had been found necessary, the line throughout is ctically unballasted; the bridging, as we have seen, is far m complete, and I am of opinion that at least two years st elapse before the line will be able to bear heavy and gular traffic. With regard to the materials, I had better ote the statement of an expert: "The rails weigh 64 lb. r yard and are in 35-feet lengths. The joints are peculiar, ing made with plain angle fishes on the inner side and deep gle fishes on the external side. The lower portion of the

deep fish plate is greatly cut away, owing to the sleepers being spaced very close at the joints, so as to carry a bearing plate under the fish plate end. The bearing plates are punched for one single-head dogspike on the inside, and two double-head spikes on the outside, one of these passing through a notch in the fishplate. The fishes are held by four bolts, with cup-heads and hexagon nuts, passing through pear-shaped holes, the two minor bolts being screwed up from the outside, the other ones from the inside. The other sleepers are secured by one spike only."

The sleepers are, I was informed, spaced 30 in. centre to centre, but in practice I found them much closer. The size is 8 ft. 2 in. by 9 in. by 6 in., but the length, I was told, should be 8 ft. 9 in., the shorter lengths being bought hurriedly of a size in use on the Japanese lines. Most of the sleepers are of Japanese timber. They are credited with being good stuff, but I cannot say they impressed me favourably. Far too great an allowance in the "wane" had been permitted, and scarcely any I saw on the line actually laid were sound throughout, many shelling away in their lateral plane, while still more had broken or split from the dog-spikes to half, three-quarters and sometimes their entire length, and only needed the passage of a few trains to fall apart.

The engines (compound Baldwin locomotives, built at Philadelphia) weigh 85 to 90 tons (a heavy engine for the weight per yard of rail adopted on this line). The cylinders are 13 in. and 22 in., driving wheels 52 in., and the engines have eight wheels, coupled with a leading two-wheeled bogie.

The scenery in the Liao-tung Peninsula is pretty among the hills south of Hsiung-yao, although there is little wood, and from the railway there is a charming view of Ta-lien-wan Bay and of the sea dotted with islands in the extreme south-west. I was too early to see signs of cultivation, for, although

ploughing was proceeding, the streams were covered in the morning with thin films of ice.

Sir D. Mackenzie Wallace, in his excellent book on Russia, says: "In conveying passengers at the rate of from fifteen to thirty miles an hour the railway companies do at least all that they promise; but in one very important respect they do not strictly fulfil their engagements. The traveller takes a ticket for a certain town, and, on arriving at what he imagines to be his destination, he may find merely a railway station surrounded by fields. He finds, to his disappointment, that the station is by no means identical with the town bearing the same name, and that the railway has fallen several miles short of fulfilling the bargain as he understood the terms of the contract. Indeed, it might almost be said that, as a general rule, railways in Russia, like camel-drivers in certain Eastern countries, studiously avoid the towns. This seems at first a strange fact. It is possible to conceive that the Bedouin is so enamoured of tent life and nomadic habits that he shuns a town as he would a man-trap; but surely civil engineers and railway contractors have no such dread of brick and mortar. The true reason, I suspect, is that land within or immediately without the municipal barrier is relatively dear, and that the railways, being completely beyond the invigorating influence of healthy competition, can afford to look upon the comfort and convenience of passengers as a secondary consideration." As in Russia, so in Manchuria: the railway avoids the most important towns, but the reason is quite different, and is capable of easy explanation. One of the articles of the agreement entered into between the Chinese Government and the Russo-Chinese Bank for the construction of the Manchurian railway stipulates that, in laying down the track, cemeteries, villages and towns must be avoided.

I have already explained how my journey northwards

through Manchuria was blocked on my return to Newchwang, and I accordingly left that port by steamer on the 17th and reached Shanghai on the 21st of April, where I ascertained that the *Kiukiang*, a British steamer belonging to the China Navigation Company, was about to sail for Vladivostock by way of Tientsin, where she was to ship coolies for work on the Manchurian railway in the provinces of Kirin and Hei-lung-chiang. We took passage by her, and, leaving Shanghai on the morning of the 27th, anchored outside the Taku bar on the 30th. Owing to a dispute as to the number of railway coolies the steamer could accommodate, the Tientsin agent of the steamer asserting that there was room for a thousand, while a Russian doctor who boarded and measured the vessel maintained that there was space for only four hundred and fifty, we did not sail for Vladivostock until daylight on the 4th of May, the number of coolies certified by the Russian doctor and the doctor himself having been received on board the previous evening.

The town of Vladivostock, in lat. 43° 6′ 51″ N. and long. 131° 52′ 44″ E., lies at the south of the peninsula between Ussuri and Amur Bays. It is approached through the Eastern Bosporus Strait (Hamelin Strait), which divides the peninsula from a group of islands to the south. At the south-west end of the peninsula a channel with a lighthouse and signal station on a small island at its entrance leads northwards from the strait to a magnificent land-locked harbour stretching for miles to the eastward and known as Zolotoi Rog—"the Golden Horn". Ascending the channel we passed guns mounted on the hills on both sides, and on the west, as the Golden Horn is neared, quite a number of suburban residences and a pretty little church. Higher up we were ordered to anchor at the quarantine station and were boarded by the health officer; but as the coolies were in charge of a Russian doctor no

examination was held, and the captain was directed to proceed to the wharf of the Chinese Eastern Railway Company early next morning and discharge his living freight. It was now evening, and the electric and other lights began to peep out from the hillsides ahead, showing the position and extent of the town of Vladivostock, which, facing south, clings to the lower face of the hills bounding the Golden Horn on the north from Amur Bay to the eastern end of the Horn. From a distance it looked like Hong-Kong; but a closer inspection revealed an immense difference. Next morning, the 10th of May, we ran alongside the wharf on the opposite or west side of the channel which is connected by rail with Vladivostock, and, with the assistance of half a dozen soldiers, the coolies, to all appearances content with their lot, were counted like so many sheep, landed, and entrained with others who had arrived the same morning in a larger British steamer, the *Glenshiel*, in covered trucks for conveyance to Nikolsk and across the Manchurian frontier. Round loaves of bread packed in bags, which had been piled alongside the track, were thrown into the trucks and scrambled for by the passengers, and off steamed the train. The coolies informed me that they had no fixed daily or monthly wage, that they were to work by the piece, and that they were to receive one *tiao* (100 large copper cash) for raising a bank of earth ten Chinese feet square and one foot in depth. As these men were engaged in Tientsin, I presume that the *tiao* in which they were to be paid is the *tiao* of Northern China, for in Manchuria the *tiao* has quite a different value. In Newchwang, for example, it is 160 large cash, and from five to six go to the Mexican dollar, whereas in Kirin the latter is worth only two. In other words, the *tiao* varies in cash value in different parts of Manchuria.

After discharging the coolies our steamer proceeded to the anchorage for merchant vessels, which is situated in the western

end of the Golden Horn, to land her cargo of brick-tea, flour, piece goods, ironware and other miscellaneous articles, and, through the kindness of Messrs. Clarkson & Co., an American firm and agents for the steamer, we were soon installed in fairly comfortable quarters in the Hotel Moscow. These, however, were not procured without a little struggle, for the proprietor of the hotel at first met us with the word "*Niet*," which means "No," "No room," "Nothing," "Not"; but the gentleman who accompanied me advised me to leave the matter with him and it would be all right. It *was* all right the same afternoon, and I soon learned that "*Niet*" in Russia does not necessarily mean "No," and that ways and means can usually be found to convert the negative into an affirmative. In England one is apt to take "No" seriously and as final; but in Russia we soon learned to receive "*Niet*" with a smile.

Hearing that the mail steamer on the Amur would not start from Habarovsk until the 17th of May, that the hotel accommodation in that town was very poor, and that steamer tickets could not be procured until the vessel was on the point of sailing, we resolved to stay in Vladivostock until the morning of the 14th, and thus leave a clear day and a half at Habarovsk to arrange our passage westwards across Asia. The greater part of Vladivostock is built of wood, but many of the more recent buildings are of brick, such as the splendid lofty blocks of Messrs. Kunst & Albers, the great German bankers and storekeepers of Eastern Siberia. I say German advisedly, for one of the partners is, I understand, a naturalised Russian. I found this firm most obliging, and, although I was a perfect stranger, I was most kindly favoured with a letter of introduction to their agent in Habarovsk, praying him to afford me every assistance in his power.

A short ascent from the Custom House through the bazaar or market-place, where fruits and vegetables were exposed for

sale, principally by Chinese, leads to the main street of Vladivostock. It runs east and west, west through the business quarter and across the railway track to Amur Bay, and east past Government buildings. Between the street and the sea, and on rising ground, are the residence of the Commandant of the port, with the Admiralty Gardens below, the Museum of the Geographical Society, the residence of the Governor of the Primorsk, the offices of the Commandant, a beautiful granite monument surmounted by a bronze globe, on which perches an eagle with outspread wings, to the memory of Admiral Nevelski for his voyages in the "fifties". Let into the pillar and facing the Golden Horn is a bust of the gallant admiral; on the opposite side is the stern of the transport *Baikal* tossed on a stormy sea, all worked in metal; and on the other two sides are tablets recording his deeds. Further east are the Naval Club and Library, the new Admiralty buildings, the Dock, and the Naval Barracks and Hospital. The most prominent public buildings on the north side of the street are the Post and Telegraph Office, the offices of the Municipal Council and the Cathedral of the Holy Virgin. To the north and south of this street, in the western quarter of the town, are merchant houses, banks and the railway station. But what surprises one in Vladivostock is the condition of the streets. These are wide enough, and in places adorned with rows of trees, but the narrow wooden pavements, here and there dilapidated, afford excellent pitfalls for unwary foot passengers, and as you are driven along the main street at full speed by the *izvoshchik*, with his miniature broad-brimmed silk top hat and velvet tunic, you naturally grasp the side of the carriage to avoid being thrown out, and one day, driving in one of the principal streets, I was positively thankful that I had escaped destruction. One monument I have omitted to mention. In the quiet thoroughfare leading from the Government landing-stage to the main street is a

gaily painted and gilded solid archway, erected for the passage of the present Czar (then Czarevitch) when he visited Siberia in 1891. On a conical hill behind the town rises a small red-brick tower—the fire-signal station—where, owing to the inflammable nature of the majority of the buildings, careful watch is always kept. From this hill the view of the Golden Horn is magnificent. Below lies the merchant shipping, and away to the east stretches a fine expanse of water, in which I counted as many as thirty red iron buoys for mooring the Russian fleet, and in the middle of the Horn there is a large floating dock. But all this is closed by ice from November to March, when entrance and exit can only be had by means of an ice-breaker.

The population of Vladivostock, exclusive of the military and naval forces, is said to amount to 30,000, and consists of Russians, Chinese, Coreans and Japanese. I do not enumerate the sprinkling of Germans, Americans, British and others, who are practically a mere handful of the populace. The Chinese are shopkeepers, artisans, domestic servants, boatmen and labourers, and as artisans they are, owing to their steady habits, much preferred to the Russians. The Coreans are mostly dock-labourers engaged in loading and discharging merchant vessels, while the Japanese are shopkeepers, clerks and labourers. I was told that the military forces in the Primorsk numbered from 60,000 to 80,000; but this was later discounted by a Russian officer to 54,000 men with coming drafts of recruits. The Chinese in their own country among themselves and in foreign employ undoubtedly possess and practise a code of manners however formal it may be; but in the towns of Eastern Siberia, where they are kissed one day and kicked the next, it is hardly surprising that they lose their manners and become rude and independent. Such, at least, is the impression which they made upon me, and I was informed by a gentleman of considerable experience that, as domestic servants, they would

lenly leave their employment without any warning what-

The next step on our homeward journey was to reach the ur, and this was easily accomplished by taking train from livostock to Habarovsk, a distance of 716 versts, or about miles. Two passenger trains leave Vladivostock daily, the l train carrying mails and passengers only in the morning, other a mixed train in the afternoon. We left on the ning of the 14th of May, and arrived at the Habarovsk ion early in the afternoon of the following day. The ıal time occupied on the trip was twenty-seven hours and -five minutes, including stoppages of three hours and fifty- n minutes, an average running speed of thirty versts, or ıty miles an hour. Everything on this section of the ns-Siberian Railway was carried out with due precision: e was a buffet-car on the train, which was made up of most fortable corridor carriages of four classes, costing roubles 0, 10·20, 6·80 and 5·41 per ticket according to class; at y station a bell hangs at the main entrance, and immedi- y the train arrives the bell is rung once, a few minutes rwards (the interval being dependent on the length of the page, which is carefully marked on the time-table between times of arrival and departure) it is rung a second time as ırning to passengers to take their seats, and two or three ıtes afterwards the third bell goes, the guard blows his tle, the engine replies, he blows a second time, the engine ies with a longer blast and the train is off. This system ails throughout the whole of the Siberian Railway. Al- ıgh there was a buffet-car on the train at which meals d be had *à la Russe* or *à la carte*, many passengers preferred, ɔtless for economy's sake, to satisfy themselves at the station shment-rooms, of which, including Vladivostock and Haba- k, there are eleven along this section of the line. The

stoppages ranged from two to fourteen minutes, the longer stoppages occurring at the refreshment stations. The Vladivostock-Habarovsk Railway, which is a single line throughout, is divided into two sections, known respectively as the South and North Ussuri. The present Czar cut the first sod of the former, which runs north from Vladivostock for 382 versts, on the 31st of May, 1891, and it was opened to traffic on the 13th of February, 1896. The cost of the permanent way was 19,117,229 and the rolling stock 1,466,280 roubles, a total of 20,583,509 or 53,884 roubles per verst—over £8,000 per mile. The country around Vladivostock is hilly and wooded, with little cultivation, and it was only after we had rounded Amur Bay and approached Nikolsk or Nikolskoe (102 versts) that signs of tillage became apparent. Here Russian peasants were ploughing with teams of oxen and ponies, but the farmhouses, if I may call them so, were wretched hovels, much worse than Chinese. The soil was a black loam, said to be well adapted to wheat cultivation, and small flour windmills were dotted about. The Government are giving every encouragement to emigrants from Russia to settle in the Ussuri region; but we found later that many of our fellow-passengers on the Amur were immigrants who had left their settlements in disgust, so that the attempt can hardly be called an unqualified success.

The town of Nikolsk lies half a mile to the west of the railway, and presented a very imposing appearance in the distance. The station, at any rate, was a scene of considerable bustle, Chinese, Coreans and Russians jostling one another on the platform. It is the junction of the South Ussuri and Manchurian lines, and the latter runs for a couple of miles parallel to the track of the former before it goes west to the Manchurian frontier, 110 versts distant. The Manchurian line was open for passenger traffic for ninety-one versts as far as Grodekovo, named after the present Governor-General of the

three Trans-Baikal Provinces, and for construction trains for another fifty versts. The total cost of the line from Nikolsk to the frontier is placed at 8,046,867 and 811,120 roubles for permanent way and rolling stock respectively. I may say here that many of the stations on the Ussuri line are named after prominent engineers and other officials. North of Nikolsk the country is well wooded with birch and scrub-oak. Further north the track lies over low ground liable to inundation. This country lies to the east of Lake Hinka (called by the Russians Hanka), the northern part of which belongs to China, the southern and much larger part to Russia. There are two important bridges on the South Ussuri line—the four-spanned iron bridge, 252 feet long, across the Lefu, 156 versts from Vladivostock, and the large three-spanned iron girder bridge, 780 feet long, across the river Ussuri, after which the railway is named. The latter is 328 versts from Vladivostock, and the station of Ussuri lies one verst to the south of the river. At verst 382 from Vladivostock we entered on the North Ussuri line, and at verst 387 reached Iman, a station three versts south of the Iman River, a tributary of the Ussuri. The Iman River has sufficient depth of water to be navigated by steamers. Goods from Vladivostock, such as kerosene, etc., intended for the Amur regions are landed here, and carried down the Iman and Ussuri at rates cheaper than by rail to Habarovsk, and much of the railway material and plant for the Trans-Baikal section of the Siberian Railway came this way. The girder bridge across the Iman measures 840 feet. The North Ussuri line was begun on the 15th of July, 1894, and opened to traffic on the 13th of November, 1897. Including the extension from the Habarovsk station to the Amur, a distance of five versts, its total length is 389 versts. The cost of the permanent way and rolling stock was 20,365,033 and 2,093,846 roubles respectively. The Bikin River, an important tributary of the Ussuri, is

crossed at verst 495 by an iron girder bridge of two spans measuring 560 feet in length, and three versts to the north of the river is the station of Bikin. Here the track passes through a well-wooded country, birch and pine predominating, with evidences of recent forest fires. Wild yellow flowers were peeping out from the underwood, and mistletoe was growing luxuriantly high up in the birches; but there was hardly a sign of bird life. At verst 638 from Vladivostock we crossed the Khor River, another tributary of the Ussuri, by an iron girder bridge of four spans, measuring 280 feet in length. Wherever the railway passes through forest, split logs of birch and pine were stacked alongside the line for consumption on the locomotives, which are all wood burners. Coal of an inferior quality is found to the north of Vladivostock, and I was informed that it is being tried on the part of the Nikolsk-Manchurian line now open to traffic. The track, which since the passage of the Ussuri, had more or less closely followed the right bank of that river, takes a curve east and west over the plain crossed by the Khor and Kiya Rivers on their way to the Ussuri for a distance of about fifty versts, when it again approaches and follows it to its junction with the Amur. The Kiya is crossed by an iron bridge of four spans, 840 feet long. At verst 679, or nineteen versts from the station of Habarovsk, a branch line six and a half versts long leaves Krasnaia-Retchka and goes west to the Ussuri for the convenience of the Chinese Eastern Railway Company. Material for the Trans-Manchurian railway is thus carried to the Ussuri, whence it finds its way by steamer and barge to the Amur and up the Sungari to Harbin. Soon after leaving Krasnaia-Retchka we caught sight of the town of Habarovsk to the west and the Amur beyond, and we steamed into the station at schedule time, only to find that we had still a three versts drive to reach the town. Piling our baggage on a wooden skeleton framework on four wheels, we got into

nother open carriage and drove to the house of Messrs. Kunst & Albers. At my request Mr. Prelle, the manager, who was kindness itself, sent one of his Russian employés with us to the best hotel, and promised to call later and do all in his power to assist us. At this hotel and at the other two hotels in the town we found the available accommodation so uninviting, not to say disgusting, that we returned in an hour's time to Mr. Prelle, who received us with a knowing smile. He understood the situation thoroughly, and he was a man of resource. A new hotel was being built, it was still in the hands of the painters and devoid of furniture, but he prevailed upon the proprietor to let us have one of the rooms, which was, of course, luxuriously clean, and provided us with a couple of iron bedsteads and a sofa. We had already laid in a stock of tinned provisions against accidents; but, pending some arrangement as to our future movements, Mr. Prelle insisted on our joining his hospitable table. As, however, there was a mail steamer about to start up the Amur for Blagoveschensk, we did not anticipate any abuse of his hospitality.

Before leaving the Vladivostock-Habarovsk Railway I must say one word regarding it. So far as I am able to judge, it is well equipped in every way: it is well built, there having been few natural difficulties to overcome; there is abundance of rolling stock; there are twenty-two sidings in addition to the twenty-four stations, where the line is duplicated, affording great facility for through traffic; and, although I heard complaints regarding the slowness of the goods trains—three days being quoted as the time frequently required to cover the 477 miles—punctuality is certainly attended to in the case of the passenger trains. On the Nikolsk-Manchurian line, which is, as I have already stated, open ninety-one versts for passenger and goods traffic, the trains do not as yet exceed a speed of twelve miles an hour, the schedule time, exclusive of stoppages, being five

hours and ten minutes. And one word of advice to those who would travel on Russian railways. Follow the Russian example and travel light. While a passenger may travel first class for a penny a mile, it will cost him a like sum for each pound weight of baggage which he carries in excess of the free allowance of one pood or 36 lb.

CHAPTER IV

›N THE AMUR, SHILKA AND TRANS-BAIKAL RAILWAY

KHABAROVSK is a town of large area, scattered over three hills and the intervening valleys, and overlooks Amur at its junction with the Ussuri. It is laid out on the ›erican block system, with wide streets running north and h, and numerous cross streets with the usual narrow wooden ›ments. Most of the buildings are of wood, but here and e in prominent positions red-brick blocks are springing up— residences and offices of Government officials. The popula- amounts to 16,000, exclusive of the garrison, which numbers ›hing from 2,000 to 3,000 men. There is a considerable ber of Chinese, who are preferred as carpenters and artisans ›rally. They are also small shopkeepers, and at street cross- tiny wooden erections, like railway ticket offices, have been up where they dispense matches, kerosene oil, fruit and other ›les. I stopped at one of these places to invest in a box of ›hes, and the lad in charge was quite overcome when I named wants in his own tongue. Instead of at once supplying me ›astened to inform his partner in my hearing, "Come, here foreigner who speaks Chinese," and it was only after I had ›ered many questions, not only about myself but also re- ›ling the probabilities of the death of the Emperor of China, ›hich they had heard a report, that I secured my box of ›hes. I was an object of curiosity every time I passed that ›, and I gather from this that very few foreigners in ›arovsk speak Chinese. Many fish-skin Tartars (Yü-p'i-ta-

tzŭ) live in the neighbourhood, but, as they visit the town only during the winter, we were denied a sight of this interesting people. We witnessed a Japanese funeral, which was attended by about fifty Japanese men who walked bareheaded in procession past our quarters. They all wore European clothes and appeared to belong to the better class. We saw several Russian processions, composed of men, women and children, preceded by a horseman with bared head. Following the horseman were a primitive instrumental band, banners held aloft, several priests chanting, and a motley crowd bringing up the rear and joining in the chorus.

Although there was little evidence of any great trade, we noticed many good shops, some of them displaying in their windows the latest European fashions, others beautifully finished *samovars*, and others, again, tinned meats, vegetables and fruits, bottled jams and boxes of sweets. There are several factories, including a brewery, and aerated waters flavoured with every possible kind of fruit are a specialty of the town. Cattle and wheat are imported from Manchuria, and the latter is at present ground into flour by numerous windmills, but a large steam mill will soon be erected for the purpose. The public gardens occupy the sloping bank of the Amur, and are separated from the church and museum on the top of the slope by a wide plaza, which is used as a parade ground. Here, as in private gardens in the town, apple trees were in full blossom. To the south of the church is a lofty triumphal wooden arch, erected in honour of the visit of the present Czar in 1891. It spans the street leading down from the plaza to the bazaar and wharves on the bank of the Amur. To my mind, however, the most imposing monument in Habarovsk is the bronze statue erected in an elevated corner of the Public Gardens to the memory of Count Muraviev, who was Governor-General of the Amur in 1854-55. It stands on a fine granite pedestal, and the Count is repre-

ented bareheaded, with folded arms, holding in his right hand a partly unrolled scroll, and gazing calmly across the Amur, the scene of his triumphs. At the junction of the Amur and the Ussuri, where there are many low wooded islands, a distance of five versts separates the Primorsk from Manchuria; but, after the junction, the Amur narrows to about two versts as it proceeds on its altered course northwards. From Habarovsk to Nikolaevsk navigation was still closed, and the river would not be free of ice for about a month. Vessels drawing ten feet can ascend the Amur from its mouth to Habarovsk during the five months in which navigation is open, and it was reported that a Russian gun-boat was expected to visit the town during the year.

Although Habarovsk is the seat of the Governor-General of Za-Baikalskaia, Amurskaia and Primorskaia, there was no special evidence of that militarism which is such a distinctive feature of Vladivostock. Whereas in the latter town every third foot passenger was either a soldier or a sailor, in Habarovsk I noticed only a few soldiers with fixed bayonets standing guard over individual convicts engaged in repairing the roads. At the time of our visit Governor-General Grodekov was absent on a tour of inspection of the water frontier of the Primorsk and Manchuria—the Ussuri River and Lake Hinka. Habarovsk itself is within the Primorsk province, which extends westward for about twenty versts beyond the town before it touches Amurskaia.

Our first visit after settling down on the afternoon of the 15th of May was to the mail steamer, which was due to sail up the Amur on the 17th. This was the second steamer of the season, the first having sailed packed with passengers on the 12th. We were very pleased with the little vessel and thought we were in luck's way—there being nine first-class cabins accommodating eighteen passengers with a good upper promenade

deck; but when we applied for passages we were at once face to face with the word "*Niet*". The Mail Steamer Company is subsidised by the Government, who have the first choice of passages for Russian officers, and it is only after the Government are satisfied that any remaining vacancies can be allotted to outsiders. On the present occasion the Government had taken up the whole of the steamer for officers proceeding to Blagoveschensk on topographical duty, and we should have to wait for the next mail steamer leaving on the 22nd. Fortunately, however, there are other steamer companies on the Amur, and on the 16th Mr. Prelle rushed in and informed us that a steamer had just arrived from up river and would leave the same night. We hastily bundled up our traps, and in company with Dr. Gelpcke, a German judge from Kiaochow, who was proceeding home by this route, boarded the *Neronov* at 8 P.M. As soon as we got on board the struggle for accommodation began. There were only three small cabins, two of which had already been secured by Russians. Two Russian captains occupied one, while the other was secured by a Russian engineer officer and his bride. Mr. Prelle came to the rescue, and prevailed upon the captain of the vessel to give up his cabin to my family while I slept in the saloon, and Dr. Gelpcke was given possession of the vacant cabin. We were all perfectly satisfied, and, had the fates been favourable, I am perfectly sure that we should have had a very comfortable trip as far as Blagoveschensk. Our passage tickets cost 18·86 roubles each, with a half ticket for my son, and we had to pay 6·44 roubles for excess baggage. This is exclusive of food supplied by the ship, which, being of the barest description, had to be supplemented by stores purchased in Habarovsk. We got up anchor at 9 P.M., and ran alongside a couple of barges which we were to tow as far as Blagoveschensk, whence they were to be sent up to Stretensk to embark Russian

recruits and remounts for cavalry in the Primorsk. We remained by the barges over night, and started up river at 4 A.M. on the 17th of May. The distance by river from Habarovsk to Blagoveschensk is 918¼ versts, which we expected to cover in four or five days; but, owing to a series of accidents which will be detailed later, we did not reach the latter town till the evening of the 27th. The Amur and the Shilka are marked, lighted, and in some places buoyed by the Russian Government, and two vessels are constantly employed during the open season in surveying the river, and, as the channel changes, in altering the marks. At all difficult crossings there are leading marks fixed on poles surmounted by oil lamps, red on the right bank, white on the left, which have to be kept in line to avoid grounding, for the shallowness of both rivers is remarkable, and necessitates the employment of paddle or stern wheel steamers only. And not only so, but the most of these steamers are simply tow-boats engaged in towing large barges of very light draught. They are all wood burners, and when the bunkers and the deck fore and aft are filled and piled with logs there is no possible room for cargo. Such was the *Neronov*, a strong iron paddle-wheeled vessel, with twin funnels, built by Armstrong, Whitworth & Co. in 1896. On leaving Habarovsk we zigzagged about from side to side of the river dodging islands, which are very numerous as far as the mouth of the Sungari, a distance of 241 versts. Here the banks of the Amur are low, and the land is densely wooded with short trees, such as willows and elms. Two hours after starting we stopped to load firewood at a wood station on the north or Russian bank. Along the whole course of the Amur and Shilka split logs of pine and birch are piled at intervals in long rows about seven feet high, and over these fly the flags of the different steamship companies. Immediately the steamer is moored alongside a wood station the crew are sent on shore, each

couple provided with two long poles, near the ends of which wedges of wood are nailed to keep the logs piled on the poles from slipping off. On reaching the deck the loads are turned over, leaving a pole in the hands of each of the bearers. When coaling, if I may use the word, all the crew wear large leather gloves as a protection against wood splinters. To take in a full complement of wood occupies about two hours, and, as this has to be done once a day, the passengers have the opportunity of a daily run on shore. Our vessel was manned by a captain, mate, pilot, engineer and staff of firemen, cook, carpenter and some ten of a crew, four of whom were Chinese, and earned exactly the same wages (thirty roubles a month) as the Russian members. One of the most important duties on board was sounding: a piece of wood about two inches in diameter and iron shod at the thick and tapering to an inch at the thin end, to which a piece of rope is lashed, is painted in foot lengths black, white and red alternately along its whole length of eleven feet, and one of the crew was constantly on deck plunging it harpoon fashion into the river, retaining, of course, the rope in his right hand. When he struck bottom he shouted to the pilot the depth of water. Probably the hardest worked individual on board was the saloon boy, a Chinese lad of about eighteen years of age. He was everybody's servant: he attended not only the passengers but also the captain, mate, pilot and engineer, and earned the modest wage of ten roubles a month and his food. He told me that he was born in Blagoveschensk, and was therefore, I presume, a Russian subject. He spoke Russian of a kind, but his Chinese was very poor, and we had some little difficulty in understanding each other. He was, however, all anxiety to attend to everybody, and always turned up with a smiling face. He had the objectionable habit of mixing up the table-napkins, to which he appeared to be little accustomed, and he was not distressed if the piece of white waxcloth which did duty for a table-cover

remained stained for days. In fact, we had said good-bye to cleanliness, for there was no bathroom on board, and the sanitary arrangements, though very imperfect, were much superior to what we experienced later. The ship's meals were: breakfast at eight o'clock, consisting of bread and tea *à la Russe*, and dinner at noon, made up of soup (usually cabbage) with chunks of beef in it, to which the passengers helped themselves from the tureen, and which they were expected to cut up and devour after finishing the soup in their plates. This was followed by a meat dish, usually beef cutlets or hash and the inevitable tea. A glass of tea could be had at four o'clock, and supper, consisting of one meat dish (always beef), was served at six o'clock, with more tea, which seems indispensable at every Russian meal and at all odd times. The preparation of tea in Russia is somewhat peculiar according to our ideas. A few pieces of burning charcoal or chips of wood are dropped down the funnel of a *samovar* into the small furnace at the bottom, the *samovar* having previously been filled with water, which surrounds the metal chimney. There is a considerable draught upwards from the furnace, which is open metal work, and it can be increased by the addition of an extra funnel with a small wooden handle. The little fire glows, the smoke disappears, the water boils, and the steam appears at a small opening in the top of the *samovar*. At the bottom of the *samovar* there is a tap for allowing the boiling water to escape when required. A tea-pot is now filled with tea leaves and boiling water poured over them. The infusion, as might naturally be supposed, is very dark in colour and very strong. It has, therefore, to be reduced. A little of what I may call the essence of tea is now poured into a tumbler, much or little according to the taste of the drinker, and the glass is placed under the tap of the *samovar* and filled up with boiling water. This is Russian *chai*, and sugar and a slice of lemon (if procur-

able) are added, but no milk or cream. We found it refreshing at first, but soon got very tired of it. The Russian, however, makes it a medium for mixing claret, brandy, *vodka* or any other wine or spirit that may be at hand.

We had accomplished about 100 versts from Habarovsk when, at 9.30 P.M. of the day of our departure, we ran full speed into a sand spit projecting into the river from the Russian bank. There is a sharp bend of the river at the spot, and the pilot had tried to round it too soon. The result was that the *Neronov* was hard and fast. Every steamer on the Amur carries a couple of long spars pointed and shod with iron at the thin end, with a cross piece through the spar near the thick end. When a vessel grounds and reversing fails, one of the spars is dropped point downwards in a perpendicular direction into the shallows, the thick end with the cross piece rising above the deck. A chain with a pulley is adjusted round the cross piece and attached to a noose fastened round the bits near the bows. The pulley chain is then passed round the capstan, and as the latter revolves the spar is either pushed into the sand or the vessel is raised. If the first spar is only partly successful, it is kept in position and the second spar goes overboard and is similarly manipulated. Clumsy as the method looks, I have seen it fail in only one of the many occasions on which it was our misfortune to witness its employment later. The solitary failure was the *Neronov*, for, although the crew worked half the night and all next morning, she would not budge an inch, while sand was meantime making all round her. There was no help for it but to await a tow from one of the same company's steamers. During the day we met four Russian steamers towing barges whose decks were crowded with horses the steamers themselves being packed with Russian officers, who always travel in uniform. We had passed a tow-boat flying the flag of the Chinese Eastern Railway Company with two

barges heavily laden with railway materials bound for the
ri and Harbin. On the afternoon of the following day
8th) the *Nerchugan*, a steamer belonging to the same
ny as the *Neronov*, came down river with a large barge
d with horses and recruits, and, after finding a safe
rage for her barge, stood by to render us assistance. She
three desperate attempts to tow us off, but failed, and in
d picked up her barge and proceeded to Habarovsk. We
now told that all hope of getting the steamer off was
oned for the present, and that we would be taken on to
veschensk by the company's first up river steamer, probably
'erchugan herself. The bride and bridegroom were too
to care about the delay; but the other passengers, and
ally we ourselves, who had hoped to be among the first
ers to pass over the recently completed Siberian Railway,
ot, I fear, blessed with the same equanimity. During
nforced idleness I had several interesting conversations
ne of the Russian captains, in one of which he assured
at within five years Harbin would be a Russian town,
Pretoria would soon be British. Curiously enough, the
is now in Russian military occupation, and the British
as been hoisted in the latter. Early in the morning of
th of May the steamer *Admiral Nevelski* arrived from
ovsk with a view to assisting us; but, seeing that our
n was hopeless, she turned round and returned without
g any attempt to tow us off. Steamers passed up and
some with barges laden with locomotives and girder
s for the Manchurian Railway, others with passengers to
om Blagoveschensk, and day after day our eyes were
d to catch sight of the smoke of the *Nerchugan*, while
kod niet" (no steamer) became a byeword among the
gers. It was not, however, till noon of the 21st that
ptain of the *Neronov* assured us that the steamer was

actually in sight, and it was with a feeling of relief that we found ourselves soon afterwards on the deck of the *Nerchugan*. She was already full of passengers, sixteen in all; but accommodation, more or less comfortable, was found for the stranded eight. We were fortunate in having the first mate's cabin assigned to us—a comparatively large room with one bed, but ample floor space for sleeping; the youthful couple got the steward's cabin; the engineer shared his room with one of the Russian officers; and the other two were placed in the forehold. Seven of the sixteen passengers were British, some of them old friends. The transfer of the baggage and of one of our barges was effected at 3 P.M., when we once more started up river.

Along the whole of the north bank of the Amur Cossack stations have been planted from time to time at intervals varying from ten to thirty versts. They are simple clearings in the forest, and no attempt at cultivation on a large scale has been made. Gardens there are, but even they are small and ill-kept. There is, however, abundance of pasturage in the forest, and cattle-rearing is universal. At every station there are fenced stockyards, where the cattle are rounded up for the winter. As a rule, a station consists of a few streets of log huts, with a large white-painted wooden church, surmounted by domes and minarets, usually of a green or purple colour, which vary in number according to the wealth of the population. During the winter the men devote themselves to hunting and felling timber for the steamers, and the entire absence of means of communication may account for the dearth of agriculture. True, at every station at which we stopped women and girls clad in gaudy skirts and wrappers, with shawls over their heads, crowded the river bank, carrying farm produce of all kinds for sale. Bread, milk, eggs, fowls, curds, butter, small oxen, calves, pigs, and on very rare occasions fish, could usually be had at very cheap rates. The Amur abounds with sturgeon and salmon,

and yet I can recall only two occasions on which I noticed fish lines and hooks, and once, on the foreshore at Puzina, I saw a huge sturgeon being cut up and disposed of. There is abundance of wealth in the Amur, but there is nobody to collect or consume it.

Between Habarovsk and Blagoveschensk there are about forty of these stations, with populations ranging from five to over a thousand souls, and very evenly divided between males and females. In the itinerary of the Amur and Shilka, which will be found in an appendix, the populations as given in the *Guide to the Great Siberian Railway*, published in St. Petersburg in 1900, are recorded.

At noon on the 22nd of May we passed the mouth of the Sungari, where a number of steamers and barges were at anchor. Hitherto we had been ploughing the waters of the Amur between low, densely-wooded banks, at times ten to twelve feet high, at others shelving to the river, and it was only when we approached Ekaterino-Nikolskaia that hills began to show themselves on the Manchurian side. At this station, which is 375 versts from Habarovsk, rafts were moored along the river face, and logs of pine were being dragged up the steep bank by horses and oxen. Beyond Ekaterino-Nikolskaia the river, which is half a mile broad above its junction with the Sungari, narrows considerably, and is hemmed in by low hills on both sides, for we were approaching the Hingan Pass, where the width of the Amur does not exceed 300 yards. Here the river has cut a passage through the eastern outliers of the Lesser Hsing-an Range, and for quiet, peaceful beauty it would be difficult to surpass the twilight picture of the dark river, hemmed in on both sides by elm and birch-clad hills 350 feet in height. Here and there patches of snow among the dense foliage, and blocks of blue ice at the water's edge, added to the charm of the scene. The small village of Hingan, with its few

log huts, scarcely ruffled the eeriness of the gorge. It was not grand. There is nothing on the Amur to equal the gorges of the Upper Yang-tsze, which rise several thousand feet sheer up from the river, and inspire awe in the breast of the traveller below. The scenery on the Amur is of a different type. Hills densely clothed with elms, pines and birches there are, with an occasional lofty crag overlooking the river; but want of life, especially on the Manchurian side, is apt to make the forest weary and monotonous. In the lower reaches of the Amur, however, the woodcutter has been hard at work and denuded the banks of pines, with the result that wood for the steamers has to be floated down from the upper reaches at double the original cost.

Steamers on the Amur between Habarovsk and Blagoveschensk usually draw between three and four feet: it is not safe except during the rains in July and August to load a vessel beyond that draught. In the narrow Hingan Gorge we had soundings of ten feet; but taking the lower river as a whole it is extremely shallow. Large roots of trees stranded on sandbanks high above the water level gave an indication of the rise during floods.

After issuing from the Hingan Gorge, and before arrival at Pompeevka, we passed a Chinese gold-mining camp on the Manchurian side. This I learned from Chinese at Raddevka is T'ai-p'ing-k'ou, and exactly opposite Raddevka itself is the camp of Kuan-yin-shan, lying at the foot of a hill some 600 feet high, with a temple of Kuan-yin half way up its face. Two gilt-topped red poles in the camp denoted the residence of a Chinese official who acts as superintendent of the mines. At Raddevka some uniformed Chinese soldiers had under arrest a miserable coolie who had stolen gold and escaped across the frontier. He had been discovered and handed over by the Russians, and was in all probability about to undertake his

t passage of the dark Amur, for in these remote corners of
ınchuria there is little ceremonial observance, and punishment
swift and sure. At Raddevka, which we reached at eight
lock on the morning of the 24th of May, we found cherry
d other fruit trees in full bloom, and there was a wealth of
rple azaleas on the hill behind the log village, while the
ɔund was in many places carpeted with wild strawberry
ınts. With flowers collected here the English ladies on
ard adorned a table which was rigged up on deck, and, having
rchased the only three bottles of champagne on board, the
ıglish party invited the captain, officers and the Russian
ssengers to join them in celebrating at noon the anniversary
Her Majesty's birthday. I am glad to say that they nearly
responded to the invitation, and after the necessary clinking
glasses the toast of long life to our beloved Queen was drunk
th enthusiasm, followed by ringing cheers and "God Save
e Queen". Our guests explained through an interpreter the
ɛasure it had given them to join us, and stated that their
shes for Her Majesty's long life were as fervent as our own.
ıe simple ceremony had, in my opinion, the effect of bringing
out a friendlier feeling between the Russian and English
ssengers. On board the *Neronov* we had each paid one
ıble and a half per day for the ship's food, and on the
rchugan the English passengers had arranged with the
ward to pay two roubles a head per day on condition that
ıweet should be added to the evening meal. Owing to the
ge number of passengers and the insufficiency of the saloon
ɔommodation, meals had to be served at three different times,
d, as there was only one Russian waiter for the whole
ınpany, it will be readily understood that much was wanting.
me of the passengers could not face the inevitable beef, and
ıtented themselves with *zakuska* served at the bar, and
ısisting of snacks of caviare, fish, bacon, etc., and a glass of

vodka, all for the modest sum of twenty kopeks. There was no bathroom, and anything beyond an ordinary wash had to be carried out under the pump.

At Pashkova, which is thirty-five and a half versts above Raddevka, the country on the Siberian bank of the Amur becomes flat and uninteresting, and continues so until Blagoveschensk is reached. The Chinese bank, on the other hand, is hilly and densely clothed with pines and birches; but, after passing Innokentevskaia, which possesses an exceptionally large and lofty church visible for some miles, the hills recede, till opposite the mouth of the Bureya River hidden by an island at the entrance, they are distant several miles from the Amur. The captain was a very careful navigator, and although we had a pilot he never left the bridge except for meals. To enable him to get some sleep, therefore, we usually came to an anchor at about 10.30 P.M., and started again next morning at about 3.30. This, with about two hours required daily for coaling, reduced the day's actual running to some seventeen hours. Poiarkova, where we arrived at 7.30 A.M. on the 26th May, was the most imposing place we had yet seen west of Habarovsk. It contained a large, gaily-painted church and quite a number of two-storied houses. The bank of the river under the town was strengthened with terraces of millet stalks to prevent it being washed away, and on the foreshore I counted fifty-six sleighs alongside a pile of bags containing oats, which had evidently been brought down river before the breaking up of the ice. Here both banks of the river, though flat, are densely wooded. There are two Chinese villages on the Manchurian bank, a few versts to the west of Poiarkova, and higher up on the same bank there is a very large wood station, where the river is broken up into several channels by islands. At the wood station a mail steamer and a tow-boat were moored; bags of oats had been discharged and piled up on the bank, and two herds of fine cattle were

roaming on the foreshore. A conference of the steamer captains was now held; and, after over an hour's delay, we paid out a steel hawser to the tow-boat, which forged ahead and made for a narrow channel alongside one of the islands. So swift was the current that, with both steamers going for all they were worth, we took three-quarters of an hour to stem it. At times we seemed to be making no headway at all, the tow-boat yawing from side to side in her frantic endeavours to help us. During the ascent we bumped several times. This is undoubtedly the most difficult part of the river between Habarovsk and Blagoveschensk. Above the channel we found a large barge laden with cattle at anchor, and a very large herd wading in the river on the Russian bank. At Konstantinovka, which we reached at 4.30 P.M., we dropped one of our barges. The village lies about half a mile from the river, and is approached over wild, uncultivated downs, and between the downs and the street of log-houses, with a large church at the up river end, were gardens of considerable size. Oats were being discharged from a barge, and the women and girls hurried down to the river with curds, milk, eggs and potatoes for sale. Here I learned that the potatoes in Siberia are grown from imported American seed. They are excellent in size and flavour. There was quite a crowd of Chinese, evidently passengers by the barge, sitting on the bank with their baggage piled around them. We moored for the night at Ssŭ-chia-t'un, a Chinese village on the Manchurian bank, where we took in firewood. We landed and found the people very civil, if inquisitive; they offered eggs and even Manila cigars for sale. There was a large admixture of the Manchu element here, for there was no mistaking the headdress, clothing and large feet of the women. The villagers, they informed us, devoted themselves to wood-cutting and horse-breeding, and we noticed a wood tax station, and in the plain behind the village a herd of horses grazing. There was

no cultivation to speak of, and the only industry I observed was boat-building. We left Ssŭ-chia-t'un at 4 A.M. on the 27th of May, and from that village to Blagoveschensk we saw more life on the Manchurian bank of the river than at any other point along the whole course of the Amur. Village after village, with cattle, horses and tents dotted the bank, and at 8.30 o'clock we reached the southern end of the town of Aigun, where the treaty defining the northern frontier of Manchuria and Russian Siberia was signed in May, 1858. Aigun, which is distant forty-one and a quarter versts from Blagoveschensk, runs for a couple of miles along the bank of the river, and is separated from the camp and forts at its northern end by a dark belt of pines. It was a sleepy-looking place, and little did we think as we passed the straggling town that within a couple of months its garrison would have dared to attack the finest town in Western Siberia, and bring inevitable destruction upon itself. It is now in ruins, and a Russian column has traversed the road which leads from it to Tsitsihar, the capital of the Hei-lung-chiang province. The *Nerchugan*, which, by the way, is a wooden vessel built at Nikolaevsk, had some difficulty in negotiating the channel leading to Blagoveschensk. Just below the junction of the Zea with the Amur a long sandbank has formed on the Manchurian side, and we had the misfortune to hug the bank too closely and to run ashore. Meantime a heavy squall of wind and rain sprang up, and we had to let go our barge, which drifted a long way down river, dragging her anchor. In the teeth of the gale the spars were dropped over the bows, and, after a struggle lasting several hours, the *Nerchugan* suddenly shot off the bank into deeper water, and drifted some distance before she could be brought to an anchor. We had again effected connection with our barge after considerable difficulty, when a large junk fouled the hawser, lay right across the bows of the barge, and was towed in that position till she was able

to clear herself. At 7.30 o'clock on the evening of the 27th of May we dropped anchor on the left bank of the Amur opposite the town of Blagoveschensk, the journey from Habarovsk having occupied ten days and a half, four of which we were aground.

Blagoveschensk is built on the left bank of the Amur, and on the right bank of the Zea, and on the angle formed by, and to the north of the confluence of, these two rivers. It is spread over a very large area, with wide streets in comparatively good repair, and contains many magnificent mercantile houses. Although red brick is now taking the place of wood, it is really a fine example of the architectural value of the latter, and one is surprised to find signboards over what in this country might readily be taken for palaces. As an architectural display it far surpasses Habarovsk and Vladivostock, and there is abundant evidence on every side that the town possesses much wealth. It is, as I have said elsewhere, the centre of the Siberian gold industry. The noble triumphal arch erected on the bank of the Amur in honour of the visit of the present Czar in 1891 befits the grandeur of the surroundings. The town is lighted by electricity, and on the night of our stay there it was on fête, and the streets and buildings were beautifully illuminated with fairy electric lamps in honour of Coronation Day. The population amounts to about 33,000, and there is a garrison of 5,000 infantry and 300 cavalry. There are three large hotels in the town, and, in spite of the word "*Niet*," with which we were at first greeted, the whole of the English party and others succeeded in obtaining a footing in one of them, although we were warned that we were liable to be turned out at any moment by mail steamer passengers who had engaged the rooms by telegraph. We took the risk; but the negotiations lasted so long that it was midnight before I got my baggage transferred from the steamer. We had been

informed on arrival that the passages by the mail steamer leaving for Stretensk in a couple of days were all booked, and, although one of our party had telegraphed from Habarovsk engaging the whole of the passenger accommodation in a steamer to connect with the *Nerchugan*, there was no steamer forthcoming on arrival at Blagoveschensk. In this connection I may mention that the Governor-General at Habarovsk had promised another gentleman of the party that he would telegraph to Stretensk to have a first-class carriage waiting for him; but the gentleman in question had actually to start on his railway journey in a horse-box! During the evening one of our Russian fellow-passengers informed us that he and some others had secured passages in a steamer called the *Vladimir Monomach*, which was to sail for Stretensk next day, and he promised to do his best for me next morning. Although the best he could do was the usual "*Niet*," several of us boarded the steamer early and succeeded in inducing the captain to take us, my quarters being a small room belonging to the pilot, who was persuaded to give it up for the sum of thirty roubles, with an additional ten roubles for the benefit of the ship. It was a bare room with only one bunk, and the floor accommodation was scanty for sleeping purposes; but several days after our departure the Russian fellow-passenger alluded to above insisted on exchanging rooms with us, he having secured a whole cabin with two bunks for himself. It was a kind act, for the pilot's room, although good enough for one, was totally insufficient for three. Four remained behind, determined to try their luck with the mail steamer, and in this they were successful, having bought out the captain and second mate for considerable sums. This and our after experiences taught us that the rouble can effect many things in Russia.

The village of Hei-lung-chiang, Sa-ha-lien or Helampo, as it is variously called, lies on the right bank of the Amur,

opposite Blagoveschensk, and it is here that the Chinese and Russian land telegraph lines connect. As I write, the following telegram from Blagoveschensk, dated 7th September, appears in the press: "A solemn thanksgiving service, attended by the principal civil and military authorities and a large concourse of people, has been held on the right bank of the Amur, on the site of the Chinese village of Sakhalin, now reduced to ashes. In commemoration of the capture of the village by the Russian troops, its name has been changed to that of Ilinskipost. The local pope, who officiated at the ceremony, delivered an address, in the course of which he said, 'The Cross has now been erected on the bank of the Amur which yesterday was in possession of the Chinese. Muravieff Amurski foresaw that this bank would be ours sooner or later.'"

The distance from Blagoveschensk to Stretensk is 1,197½ versts, and is reckoned an eight days' journey by mail steamer under favourable conditions. As we were about to travel in an ordinary cargo steamer with passenger accommodation, we did not anticipate such speedy transit, and considered it advisable to lay in a goodly stock of provisions to supplement the not too sumptuous steamer fare. We soon found that luxuries in Blagoveschensk were at prohibitive prices. While Scotch whisky (labelled as such) manufactured in St. Petersburg and Russian brandy cost roubles 1·40 and 2 per bottle respectively, whisky manufactured in Scotland was not to be had, and French brandy cost seven roubles a bottle, and as much as nine in the hotels. Russian cigars were offered at sixteen roubles a hundred, and I was told that the customs duty amounted to nine roubles a box—much more than the value of the cigars themselves. We left Blagoveschensk at 10 P.M. on the 28th of May; but, previous to our departure, the first mail steamer of the season arrived from Stretensk, bringing very bad accounts of the shallowness of the Shilka and of the train accommodation

between Stretensk and Irkutsk, and we were assured that unless the Shilka rose very considerably the *Vladimir Monomach*, which was drawing four and a half feet, could not possibly reach her destination. We were already too sick of struggling with adverse circumstances to care about trifles: we were glad to be on board a steamer of any kind. I have omitted to mention that excess baggage between Habarovsk and Blagoveschensk was charged at the rate of ninety-two kopeks a pood. There was quite a crowd of Russian and Chinese deck passengers on our new steamer (new to us, but in reality an old wooden tub), who rigged up planks and stowed themselves away in a very clever fashion. The Chinese brought their provisions with them, in the shape of round flat loaves of bread with holes in the centre, through which a string was passed: they were like strings of cash on a large scale. The sanitary arrangements were disgusting from an English point of view, and the water supply was primitive and inadequate. A bath was entirely out of the question, and even in the hotel at Blagoveschensk, where we did expect to get a good wash, there was no bathroom.

Owing to a dense fog in the early morning, during which we had to anchor, the *Vladimir Monomach* did not arrive at Markovo, forty-four versts from Blagoveschensk, till 7 A.M. of the 29th of May. In the Lower Amur we had experienced a fairly high temperature during the day, while the evenings were chilly, and in the Upper Amur the extremes were still more marked. During the day and in the sun it was uncomfortably hot and shade was desirable; but it was frequently freezing overnight. Blocks of ice were stranded along the banks whereon wild roses were growing, and the bushy fronds of the peony were a foot above ground, while beyond on both sides low trees were laden with white blossom. Just beyond Bibikova, which is seventy-six and a half versts from Blagoveschensk, the river, some 800 yards wide, is bounded by green, flat-topped hills

about 100 feet high, clad with low trees half way up their sides, but as Busseva is neared they recede from the river on the Russian side. In the early part of the day a few huts here and there were visible on the Manchurian bank, and smoke was curling up from the dense forest, where woodcutters were doubtless at work. Many rafts of pine were met during the day manned by Russians, and on one I counted as many as nine working the sweeps. The captain always slowed down as we approached a raft, to save it from our wash. We moored for the night alongside a wood station, and coaled by the light of a fire of pine logs. It was showery overnight, but we were off again at 2.30 A.M. of the 30th. A steamer drawing three and a half feet, crowded with passengers, passed down in the early morning, and we took courage, for the *Vladimir Monomach* was drawing only a foot more. Here the scenery was very pretty: occasional cliffs rose from the river on the left bank, and steep, densely-wooded banks hemmed in the Amur on the Manchurian side. Birch was predominant. Every night we have had a magnificent display of fireworks. Showers of glowing sparks of charcoal shoot up from the steamer's funnel, and are reflected in their thousands ere they drop and are lost in the dark bosom of the Amur. During the day these burning sparks played considerable havoc with our clothes, and the whole of the vessel's deck and painted rails were scarred and charred by them. I have seen one of them drop down the neck of the man who was sounding, and cause considerable pain. Beyond Novo-Kumarskaia, and opposite the mouth of the Kumara River, which enters the Amur on the Manchurian side, a large cliff some 200 to 300 feet in height, surmounted by a high wooden cross, rises sheer from the river. It is known as Amur Cliff, and was the scene of great enthusiasm when the present Czar passed in 1891. It was crowded with Cossacks, who cheered the then Czarevitch to the echo. In the evening we passed a still higher and more

imposing cliff on the Chinese side, and were asked to believe that the tiny trickle down its face is petroleum.

On the morning of the 31st of May, and before arrival at Ermakova, the banks of the river, which narrowed to about 200 yards, were piled with blocks of ice, and at one place in a bend on the Russian side a large part of the gravel bank had been freshly scooped out, evidently by glacial action. Soon afterwards a steamer towing a couple of barges laden with horses passed down river. These horses are, I understand, bred in a district to the west of Irkutsk. The principal entrance to all these Russian stations or villages is marked by a wooden archway, which is approached from the river by a staircase. At Cherniaeva, which we passed at 7 P.M., the archway was more elaborate than usual; it was wide and artistically roofed. Here signals giving the depth of water were posted, showing that shallows might be expected higher up, and next morning, between Vaganova and Tolbuzina, we grounded sure enough, and remained fast for an hour and a half while the cumbrous spar was brought into play. Two steamers, one drawing four and a half feet at the bows and three feet at the stern, passed down during the day, and our hopes of successfully reaching Stretensk in the *Vladimir Monomach* rose. Overnight the mail steamer with our friends from Blagoveschensk caught us up and moored at the same wood station; but we were off before her in the morning, only to be passed a few hours later while we were struggling in a shallow part of the river. This did not add to our happiness, and when we grounded again a few hours later and the rain came down the social barometer fell considerably. It was little consolation to us to be able to pass a small Government launch towing fifteen small rowing boats up river. Here and there in sheltered nooks there were snowdrifts a couple of feet above the water level.

We passed Albazin during the afternoon. We had hoped

o see in this place some historical monuments of the struggle hich was carried on between the Russians and the Chinese om 1685 to 1689, when, by the treaty of Nipchu (Nerchinsk), he Russian fortress built there was demolished, and Russian ubjects withdrawn to Muscovite territory. We were disap-ointed. Albazin is a collection of poor-looking log shanties, nd, although our steamer did not stop there, we saw all we ared to see from the deck. It appeared to be one of the poorest ossack stations along the Amur. In contrast to Albazin, einova, which we reached the same evening, is a flourishing lace. It has a good main street, with wooden pavement, unning along the river bank, containing several good shops, here we were able to purchase cocoa, jams and other luxuries. t likewise boasted of a Post and Telegraph Office, and it was uite a surprise to hear a harmonium and even a gramaphone t work. Here we met a number of Chinese, who informed me hat they were on their way to some gold mines seventy miles o the north. Our cargo consisted of American flour, cement, rick-tea and *vodka*, which its owner, who is also owner of the essel, was carrying to Stretensk as a venture. On arrival at einova he received a telegram from up river stating that there as only three and a half feet of water in the Shilka, and that ur vessel could not proceed beyond Pokrovskaia. The Russian assengers were very indignant, and asked us to join them in ringing pressure to bear upon the owner, and I fear the poor an had a very unhappy time until we discovered that it would ave been madness to attempt the ascent of the Shilka in the *Vladimir Monomach*. The bad news probably induced him o dispose of a goodly number of bags of American flour at einova. On the opposite bank there was a small Chinese amp with flags flying.

We arrived at Svirbeeva at 10.30 A.M. on the 3rd of June nd anchored just above the village, when the captain and pilot

proceeded up stream in a couple of boats to survey what was described as the worst crossing in the whole river. We spent a couple of hours on the wooded bank, where we discovered a couple of snakes, gray and black in colour and about two and a half feet long. I noticed that the Russians showed a great aversion to these creatures, standing at a distance with large stones in their hands, while a Chinese, who was one of the crew, went in with a stick and disposed of one of them, the other escaping and succeeding in concealing itself in the tall grass. The verdict was four and a half feet on the crossing, and we dropped down river to Svirbeeva, and, following the example of another steamer, discharged part of our cargo, lightening to three and a half feet at the bows and three feet at the stern. The cargo was dumped on the foreshore, a tarpaulin spread over it, and one of the crew put on shore with his box to guard it until the ship's return. In the woods we found dandelions, wild strawberries, azaleas, may and single pinks in full bloom, and wild and peony roses beginning to bud. The trees were firs, spruces and birches, firs and spruces predominating. There was no cultivation except in small gardens. Potatoes and milk were on sale. In the early morning we met a raft with a couple of tarantasses, two horses and a Russian family floating down stream. The vessel that was lightening on our arrival at Svirbeeva now made the attempt to pass the shallows, failed, and returned to discharge more cargo. Meantime, another steamer with Chinese passengers bound for gold mines was successful, and the *Vladimir Monomach*, accompanied by a boat and crew from the unsuccessful vessel to watch proceedings, steamed for the shallows. We had to cross the river. Alternately scraping the pebbly bottom, remaining fast, and raising the bows with our spars, we struggled through, only to find that there was as shallow a crossing three versts higher up. Fortunately the latter was safely negotiated without a hitch,

and the captain blew several blasts on the whistle to warn the steamer at Svirbeeva that we had surmounted the difficulties. It was now 9 P.M., and we at once moored alongside a wood station after a very trying day.

A dense fog hung over the river on the morning of the 4th of June, and we did not get under way till 7.30 o'clock. An hour later, from out the whiteness glided an enormous raft of huge pine trees, with two huts for the accommodation of the twelve men and four women (all Russians) who were its occupants. The fog soon lifted, and we found ourselves in the midst of lovely scenery: on either bank were fairly high hills, densely packed with pine and birch. The log-hut stations of Sgibneva and Ignashina were passed at 11.15 A.M. and 2.50 P.M. respectively, and twenty minutes later we moored at the Chinese village of Mo-ho, which runs along the right bank of the Amur over a mile above Ignashina and is the most important gold camp in the whole of Manchuria. The population of the village probably does not exceed 500, and I noticed one or two uniformed soldiers in the crowd that thronged the river bank. I learned on shore that Mo-ho is the residence of a Taotai who superintends, and who was absent at, the mines 70 *li* ($23\frac{1}{3}$ miles) inland. The most prominent building was a Russian shop, over which flew the Russian flag. I visited several Chinese shops, which were poor, and I record here, with all due reserve, the results of inquiries made regarding the mines. I was told that there are about 10,000 gold-washers (placer-mining), and that 70 Chinese ounces of gold dust represent the daily output; that there are 1,000 soldiers engaged in protecting the mines; and that this force, being insufficient, was about to be strengthened by another 500 men. A simple calculation will show that 70 Chinese ounces of gold per day would barely suffice to pay 10,000 workmen, not to speak of the military force, so that either the number of miners was very much exaggerated, as I

suspect, or the output of gold was understated. These were the figures given by the man on the street; but they are probably as reliable as any official utterance would have been. Much care had been taken to protect Mo-ho from the river, or more probably ice. A groin was built at the upper end of the village, and nearly the whole of the bank was faced horizontally for about twelve feet of its height with wooden planks. A large wooden Chinese house-boat in a state of decay lay on the top of the bank at the chief entrance to the village. There was some cultivation; potatoes, onions, wheat and barley are grown; but millet, the great crop of Manchuria, will not, owing to the shortness of the summer, mature so far north. In one of the shops I noticed some very poor rice, which had been imported by steamer. It is a large wood station, and the bank was lined with logs for steamer use. Recent reports state that Mo-ho has since been occupied by the Russians and burned to the ground.

As it was daily becoming more evident that the *Vladimir Monomach* would not be able to ascend the Shilka, the passengers had been strongly urging the owner to make some arrangements for their conveyance from Pokrovskaia to Stretensk, and we were delayed several hours at Mo-ho while he proceeded to Ignashina to telegraph to these two places as to the possibility of securing passages for us in another vessel. But this was not the only delay during the day, for before arrival at Amazar, a poor log station reached after a very shallow crossing, we bumped heavily on a snag or rock. A rush was made to the forehold and cargo laboriously hauled out; but it was only after a considerable time had elapsed that the ship was discovered to be leaking near the stern. Amid great excitement she was run along the Chinese bank and patched up over-night. We were now only about thirty versts from Pokrovskaia, and when we left at 6 A.M. on the 5th of June we expected to be there in a

few hours. Judge of our surprise, therefore, when an hour and a half later we were told that our firewood was exhausted, and that there was no wood station in the immediate neighbourhood. We moored alongside the Russian bank, and the crew landed with saws and axes and proceeded to cut and chop trees into suitable lengths. And not only so, but a quantity of flour was carried on shore to lighten the ship. Had we known then, as we picked lilies of the valley and sweet peas among the bracken under the shade of pines and birches on the steep bank, that the passengers by the mail steamer, which had passed us on the 2nd of June, were starting that day from Pokrovskaia for Stretensk on a barge towed by a light draught steamer, I fear we would have mutinied. But fortune, which had hitherto been scant in its favours, did not desert us, for as we approached Pokrovskaia our eyes were gladdened by the sight of eight steamers, including the mail steamer, in port, and surely here we should be able to find transit to Stretensk. We came to an anchor at 1.30 P.M., and immediately a rush was made on shore by the passengers, who actually raced each other along the river bank for a place on the mail steamer. "*Niet*" was the answer, and I was just leaving another steamer where filthy accommodation was to be had, and where the bride and bridegroom had taken passage, when a friend from the mail steamer met me, took me on board that vessel, and introduced me to Mr. Bostelmann of the Chinese Eastern Railway Company, proceeding on business to St. Petersburg, who, he said, would find room for myself and family. Mr. Bostelmann not only advised me to get my baggage on board the mail steamer, but even assisted me in having it and my family transferred. During my absence in search of passages my wife had heard that accommodation might possibly be procured, in which case we should have to leave in a couple of hours, so she packed up all the baggage and dressed our little boy who had been on his back for a couple of days with

violent fever. When we went on board the *Vladimir Monomach* we found that part of the baggage had already gone; but my family were waiting with the balance for my return. We transferred them at once to the mail steamer, and I went in search of the missing packages, which were denied access to the steamer from the shore. The steamer herself was returning to Blagoveschensk; but a large barge, drawing only one foot of water, was brought alongside and her passengers and their baggage transferred to it. After standing by my effects along with other would-be passengers for at least an hour I was told to bring them on board. The baggage was all piled on deck pending the allotment of places, and, owing to the crush of passengers, it was some considerable time before this could be effected. The ladies and children were accommodated in a saloon set apart for them, while I succeeded, with the assistance of Mr. Bostelmann, in securing the stewardess's room for the sum of ten roubles. The gentlemen's saloon was already crowded, and some of our fellow-passengers in the *Vladimir Monomach* had to content themselves with places in the second class. It was preferable to being left behind at Pokrovskaia, with no certainty of being able to get beyond. Pokrovskaia, of which I saw little, except a large corrugated iron godown, with signs of cultivation between the village and the hills beyond, will haunt me to my dying day, and my reader will have learned ere this that comfort is not to be found on the Amur. Travelling as I travelled was not a pleasure: it was simply a struggle for existence. I have travelled thousands of miles in the interior of China, where I expected no comfort, and I was not disappointed; on the Amur I expected at least certain facilities, if on a less liberal scale than in Europe; but I found that if I wanted anything it had to be extorted by sheer doggedness and determination not to accept a refusal.

Not only was the barge crowded with passengers and baggage,

but even the small steamer *Amur*, which took us in tow, was packed with a seething mass of humanity. Her decks and paddle-boxes were occupied by Chinese, Coreans and Russians, who spent their days and nights in warding off with fans and umbrellas the living sparks which issued from her funnel. Every now and then there was a sudden commotion, with more violent waving of defensive weapons, showing that some one was on fire. Tow-boat and barge together carried about five hundred souls, and the draught of the *Amur* with her living freight was only a foot and a half. The shallowness of the Shilka in the spring of 1899 proved a great hindrance to navigation, and the Mail Steamship Company found it necessary to procure three light draught tow-boats and a number of barges to carry the mails and passengers from Pokrovskaia to Stretensk. There was still less water in the Shilka in 1900, and an extension of the Siberian Railway from Stretensk to Pokrovskaia is now talked of as a necessity. The river begins to rise in July; but so little time is then left before it is blocked by ice that the Shilka can never be looked upon as a commercial highway of any practical value.

We left Pokrovskaia at 8.15 P.M. on the 5th of June, and an hour later we had covered the last few versts of the Amur and arrived at the confluence of the Argun and the Shilka, whose combined waters go to make up the Hei-lung-chiang—the "Black Dragon River"—on which we had already spent twenty days. We passed from Manchuria and Amurskaia to the Trans-Baikal province, and as I gazed in the twilight on the bold, densely-wooded Manchurian bluff which overlooks the mouth of the Argun I tried to penetrate the darkness of the future, more intense than the darkness of night.

Leaving the Amur for the Shilka we said good-bye to Manchuria; but, as it is believed that the Siberian Railway will, in the near future, have far-reaching effects on the subject of this

book, and on communication between East and West, I propose to continue my narrative to Stretensk and even to Lake Baikal.

The scenery on the Shilka is bolder and finer than on the Amur. The river frequently narrows to about one hundred yards in width, and is hemmed in by steep banks densely wooded with birch and pine. There was every shade of green, from the light-tinted grass in the gullies to the dark needles on the pines. Blocks of ice six to ten feet in thickness strewed the water's edge or still clung firmly to the banks. Early in the morning of the 6th of June we passed three steamers aground, and at noon we reached Povorotnaia, a poor log village fifty-nine and a half versts from the mouth of the Shilka, where we coaled on the opposite bank of the river. Here we found a small Orotchi tent, with a squat, flat-nosed woman and three children, the youngest about three weeks old nestling in a tiny cradle of birch bark, of which the tent itself was constructed. Higher up the Government stern-wheel steamer *Sungari*, one of the two vessels engaged in surveying, was at anchor. Herds of ponies were grazing on the banks wherever it was possible to gain a foothold. At 8 A.M. on the 7th we reached Chasovaia, 133½ versts from Pokrovskaia. The scenery was still the same: the river winds about between steep banks, with always a seeming barrier of hills ahead. No provision had been made for the extra passengers taken on board the barge at Pokrovskaia, and early in the afternoon, as food was running short, a Cossack officer and a railway engineer went on a foraging expedition when we were taking in firewood at Sobolinaia. For fifteen roubles they secured a pig, which, although loudly objecting, was brought on board amid great excitement, the passengers cheering and the Russian officers joining in a welcoming song. It was served at supper the same evening, but I do not think that any of the English passengers enjoyed it.

We reached Gorbitza, 161½ versts from Stretensk, at mid-

night, but owing to a dense fog were unable to proceed till 7.30 o'clock next morning. It is a large place with extensive log buildings and considerable cultivation. It is the centre of a gold mining district, and between it and Ust Kara, 54¾ versts higher up, there is said to be an Imperial Reserve of 12,000 square miles, part of which is worked by Government and the balance farmed out to miners. A Russian gentleman informed me that he would sooner throw his money into the Shilka than invest a rouble in Siberia. He told me that litigation almost invariably arose in regard to contracts entered into at such a distance from headquarters, and that the weaker had to go to the wall, and he inveighed strongly against the venality of Russian officials. A fracas had just occurred between Cossacks and bandits in the immediate neighbourhood of Gorbitza and eight men had been shot. It took thirteen and a half hours to accomplish the 54¾ versts to Ust Kara: at several places the current was very strong, and for hours we made little or no headway, in spite of the poleing of passengers and crew. Two steamers passed down from Stretensk, one drawing three and a half, the other two feet. Ust Kara is a considerable village, with two large churches, at the mouth of the Kara River, a tributary of the Shilka. It is backed by flat-topped ranges of high hills densely wooded, and, like Gorbitza, it is one of the most important places on the river. On the opposite or right bank it is faced by wooded rocky heights, showing near the water's edge at least ten feet of bare rock scarred and worn out by the current when the river is in flood. Ust Kara is the centre of silver and lead mines, to which, previous to 1898, political offenders were banished; but I am informed that only criminals are now sent to the Siberian mines, and that political offenders are dealt with in Russia itself. I have omitted to mention that at Verkhne Kularskaia, 17¾ versts below Ust Kara, we passed a large dredger, fitted with electric light and all modern appliances.

Shilkino, which we reached at six o'clock on the morning of the 9th of June, is the largest station on the Shilka, and has a population of about one thousand. Four versts higher up we were provided with a smaller but more powerful tow-boat, the *Ingoda*, and many of the passengers of the *Amur* were transferred to the upper deck of our barge. The scenery became bolder and more rocky until arrival at Botovskaia, when the country opened out and cultivation was general. We were now only sixty odd versts from Stretensk, and next morning, as we skirted the right bank of the river, the group of officers on our deck were saluted by soldiers on shore, who were bathing and drawing water for the camp, which lies on the outskirts of the town. Steaming above the terminus of the Siberian Railway, on the opposite or left bank of the Shilka, where we looked in vain for a train, we passed the pendulum ferry, worked by the current, and moored along the Mail Steamer Company's wharf at 10 A.M. on the 10th of June, twenty-seven days from Vladivostock, during which time, with the exception of the three days and eighteen hours we were aground in the Amur, we had caught every possible connection.

Stretensk is a very much smaller town than either Blagoveschensk or Habarovsk. Its population, which in 1897 numbered only 1,710, now amounts to about 8,000, and the increase is due in a great measure to the advent of the railway. The town is narrow, and runs for about a couple of miles along the right bank of the Shilka, sloping from hills in the rear down to the river. The houses are nearly all log built, and there are no prominent buildings as in the larger towns of Eastern Siberia. A Chinese fruit-seller told me that there were several hundred of his countrymen in the town engaged as petty traders, servants and artisans. The day of our arrival being a Sunday, the most of the shops were shut, and this may have strengthened the impression I received that Stretensk is a poor

lace. The result of the inquiries which we at once made was
ıat the train from Lake Baikal would probably arrive that
ay, but that, owing to the state of the line, there was no
ertainty as to the times of arrival and departure. There was
o rolling stock at Stretensk, and, as soon as the engine driver
ad secured a few hours' sleep, the train would be turned round.
Ve at once laid in a stock of crockery, cutlery and provisions,
ıd during the afternoon sent our baggage across the river to
ıe railway station, intending to spend the night in the barge.
Iany of our fellow-passengers passed the night at the station.
here was little sleep for us that night. Half an hour after
ıidnight I saw the train steaming into the terminus, and two
ours later we were at the station and had secured tickets for
·kutsk. Much time was wasted in passing and paying for
ctra baggage, and when we went to secure places on the train,
hich was made up of fourth-class carriages, each certified to
urry forty-three passengers, with bare wooden seats for sleeping
ccommodation, baggage waggons and horse boxes, we found
ıat the fourth-class carriages were already filled by those who
ad spent the night at the station. The railway officials made
o attempt to assist us, and it became simply a question of
Help yourself". We put the ladies into half of a baggage
aggon, and four of us took possession of a guard's van, which
e held against all comers. The guard was duly squared, but
is really wonderful how often he was changed between
tretensk and Baikal, and how persistent each successor was
) occupy his room until he had been similarly disposed of. At
very stopping place one of us had to keep guard, and exclude,
ometimes by main force, would-be travelling companions.
ome of our friends who had spent the night on shore at
tretensk did not turn up till morning was well advanced, and
ıey had to content themselves with a box certified to accommo-
ıte forty men or eight horses, and, in spite of all their exertions,

they were unable to retain sole possession, men, women and children having been forced upon them.

The railway stations at Stretensk and Lake Baikal are respectively 1,450 and 1,561 feet above the level of the sea. The distance between them is 1,035½ versts, in the course of which the junction of the Trans-Manchurian Railway now under construction and the Trans-Baikal section of the Siberian Railway is effected at Kaidalovo, 252½ versts from Stretensk, the Yablonoi range of mountains is crossed at an altitude of 3,182 feet above sea level, and the passage of the river Selenga is accomplished by an iron girder bridge of six spans. The Trans-Baikal Railway was begun on the 23rd of April, 1895; but, owing to disastrous floods, which swept away a considerable part of the line in the neighbourhood of Nerchinsk in 1898, it has only just been completed, and, although one train leaves either end daily, it is not yet in proper working order. As far as Chita, which is about 360 versts from Stretensk, the line follows closely the left banks of the Shilka and Ingoda rivers, and, where rock cuttings have been found necessary, the track is so narrow that the cliffs appear to overhang the line. The result is that it could never be duplicated except at a very large expenditure, during which the present track would be rendered useless. In many places, on the other hand, the embankment is built of sand and shingle, and the sides are pegged diamond-shape and planted with young willows to prevent slipping. Here the train was slowed down to a walking pace. The village of Kaidalovo is some 107 versts to the east of Chita, and at this point the Ingoda River is crossed by an iron girder bridge of two spans, with a total length of 560 feet. The bridge was all but completed; but the scaffolding underneath one of the spans had not been removed, and railway material was being transported across the river by a pendulum ferry. The track as surveyed from Kaidalovo to the Manchurian

frontier measures 324½ versts; but I have already referred to this line in a preceding chapter. Between Stretensk and Chita cultivation was general, and there were large tracts of grass-land, with herds of ponies, cattle and sheep. Beyond Chita the line ascends the eastern slope of the Yablonoi Range through a forest of birch and pine, and it was with great difficulty that our train, weighing about 200 tons, was dragged and pushed by a couple of locomotives over the highest point of the track at Gongota. Before reaching the summit there is a covered rock cutting of no great length. The descent to the west of Gongota is easy for a distance of 255 versts, the track following for the most part the right bank of a stream—the Khilok—a tributary of the Selenga, and at one place passing through a short tunnel. Leaving Khilok it ascends to Kisha, whence there is a steep descent to Gorkhon, and thereafter a gradual dip to the river Uda, another tributary of the Selenga, crossed by a two-arched bridge, and to the town of Verkhne-Udinsk on the right bank of the latter river. Verkhne-Udinsk is a prosperous town with about 8,000 inhabitants, and connects with the Kiakhta Road, through Mongolia, to China. At the station I noticed a number of Buriats, who wore short queues and were dressed in the long wadded coats and official winter hats of the Chinese. On leaving the town the railway crosses the Selenga by the six-arched bridge mentioned above, and, following for some distance the left bank of the river, goes west by south through well-cultivated and well-wooded country to the village of Mysovaia, on the south-eastern shore of Lake Baikal. We left Stretensk at 7 A.M. on the 11th and reached Mysovaia at 9.45 P.M. on the 13th of June, the journey thus occupying sixty-three and three-quarter hours, an average speed, including stoppages, of nearly eleven miles an hour. It may seem unfair, in the present state of the track, which, except at rock cuttings, is ballasted with gravel and sand only, to cite

this speed; but, when it is considered that the rails weigh only 48·6 lb. to the yard, necessitating the employment of light engines, and that the gradients are frequently as steep as one in sixty, it would appear highly improbable that the Trans-Baikal Railway can ever cope successfully with heavy traffic or develop a high rate of speed.

Before we reached Baikal it was rumoured that a storm was raging on the lake and that the ice-breaker on which we were to make the passage across had not yet arrived from the opposite side, and snow on the mountains ahead gave support to the rumour; but as we approached Mysovaia in the twilight the electric lights of the *Baikal* shone on a placid lake and the ripples kissing the shore. A marriage was being celebrated on board the ice-breaker, and we were kept in the station at Mysovaia from 9.45 P.M. of the 13th till 2.30 A.M. next morning, when we were shunted along the wooden pier, at the end of which the *Baikal* was moored. A wild dash was made for the steamer, and for a time passengers and baggage were inextricably mixed up, each one struggling to get his effects on board and secure a place for a few hours' rest. Although the *Baikal* is constructed to carry a whole train, our carriages were not shipped; but at the moment the vessel was not in proper working order, and, moreover, she is said to roll in heavy weather to an angle of 30°. The *Baikal* was built by Messrs. Armstrong, Whitworth & Co., and launched in June, 1899, at the village of Listvianichnaia, on the north bank of the Lower Angara where it leaves the lake. She is a vessel of 4,200 tons, and her measurements are 290 feet long and 57 feet beam, with a draught of 18 feet at the bows and 20 feet at the stern. She is built of steel, and is fitted with three triple expansion engines, with an indicated horse-power of 3,750. She has four funnels. Her speed was to be twenty and a half versts an hour, but I was told on board that she had never exceeded ten knots.

This, however, may be accounted for by the fact that the starboard engine has broken down, and that of the three propellers (one at the bow and two at the stern) only two were working. Nor can repairs be effected until the floating dock now in course of construction is finished two years hence. I was told that the *Baikal* could cut through ice over four feet thick at the rate of several knots an hour. She crosses the lake three times a week, and has on an average about eight hundred passengers bound east. We left Mysovaia at 4 A.M., and, after a motionless passage of five hours, arrived at Baikal-ozero on the left bank of the Lower Angara, opposite Listvianichnaia. During the crossing we had a magnificent view of the snow-clad Khamardaban Mountains to the south-east, rising to a height of 3,000 feet above the lake. It has been found that Mysovaia is not a suitable harbour for the *Baikal*, and a railway forty-five versts long is in course of construction to a point further south on the lake, where there is deeper water, and on its completion the harbour will be transferred to that place. This does not speak well for the speedy construction of the line round the south of Lake Baikal, and I heard the opinion freely expressed by Russians that, in view of the great physical obstacles to be overcome, this line may have to be abandoned.

We saw little variety of animal life during the whole of our journey. Crows, magpies and sparrows were common enough; duck were likewise plentiful on the Amur; the note of the cuckoo was frequently whispered from the primeval forest; a pheasant at Raddevka; and the song of the lark as he soared above the Siberian plains—these were all we saw or heard.

My object in carrying my reader with me to Lake Baikal was to point out the point of junction of the Siberian and Manchurian lines, and, as that has been accomplished, I have only to add that

after a number of adventures we reached London on the morning of the 2nd of July, travelling from Irkutsk to Krasnoiarsk, Omsk, Cheliabinsk, and thence by way of Moscow, Warsaw, Berlin, Ostend and Dover to London—a journey from China to England of fifty-nine days.

CHAPTER V

BOUNDARIES, PHYSICAL FEATURES AND CLIMATE

MANCHURIA, or the Tung-san-shêng ("Three Eastern Provinces"), as it is called by the Chinese, is an agglomeration of petty Tartar or Manchu principalities, lying to the northast of China Proper and east of Mongolia, which were conquered ne after another and welded into one kingdom during the sixeenth and seventeenth centuries by a Manchu chieftain named Jurhachu and his successors, who, pushing south and west from heir ultimate capital, Moukden (lat. 41° 46′ N. and long. 123° 7′ E.), overthrew the great Ming dynasty and seated themelves on the throne of China at Peking in the year 1644, under he name of Ta Ch'ing Ch'ao ("The Great Pure Dynasty"). Kuang Hsü, the ninth Emperor—Shun Chih being the first—f that dynasty, now reigns; but what the primitive Manchu reapons effected in China in the beginning of the seventeenth entury the rude agricultural implements of the Chinese are ccomplishing in Manchuria at the present day. Since the stablishment of the Manchu dynasty, however, this field for Chinese enterprise and expansion has been very much curtailed. When the Manchus were struggling with China the Russians were settling on the banks of the Upper Amur and in the neighbouring regions, which then constituted part of Northern Manchuria. This encroachment, which was naturally resented, gave rise to a conflict, which resulted in the Treaty of Nerchinsk n 1689, wherein the boundaries of the two Empires are laid lown. The preamble of that treaty distinctly states that it

was concluded "in order to repress the insolence of certain rascals who, making hunting incursions beyond the limits of their territories, pillage, murder and stir up trouble and quarrels, as well as to determine clearly and distinctly the boundaries of the two Empires of China and of Muscovy".

The Articles of this Treaty, so far as they define these boundaries, are given below in French and in English translations of the Russian and Chinese texts respectively:—

FRENCH.	RUSSIAN.	CHINESE.
Article I.	*Article I.*	*Article I.*
La rivière nommée Kerbetchi, qui est la plus proche de la rivière Chorna, appelée en tartare Ourouan, et qui se décharge dans le fleuve Saghalien-Oula, servira de bornes aux deux empires; et cette longue chaîne de montagnes qui est au-dessous de la source de ladite rivière de Kerbetchi, et qui s'étend jusqu'à la mer Orientale, servira aussi de bornes entre les deux empires; en sorte que toutes les rivières ruisseaux grands ou petits qui coulent de la partie méridionale de ces montagnes et vont se jeter dans le fleuve de Saghalien-Oula, et toutes les terres et pays qui sont au sud du sommet desdites montagnes appartiendront à l'empire de la Chine; et que toutes les terres, pays, rivières et ruisseaux, qui sont de l'autre côté du sommet	The river Gorbitza, which joins the Schilka from its left side near the river Tchernaya, is to form the boundary between the two Empires. The boundary from the source of that river to the sea will run along the top of the mountain chain (in which the river rises). The jurisdiction of the two Empires will be divided in such a way that (the valleys of) all the rivers or streams flowing from the southern slope of these mountains to join the Amoor shall belong to the Empire of China (*lit.* of Han), while (the valleys of) all the rivers flowing down from the other (or northern) side of these mountains shall be similarly under the rule of His Majesty the Czar of the Russian Empire. As to (the valleys of) the other rivers which lie between	The river Gorbitza, which is next to the Chorna (Tchernaya) or Wu-lun-mu River, and which enters the Amur from the north, shall constitute the boundary of the two Empires. The frontier line shall ascend the Gorbitza to the Shih-ta-hsing-an Range, and along that range (eastward) to the sea. The country to the south of this range, with all its rivers and streams entering the Amur, shall belong to China, and the country to the north of the range with its rivers and streams shall belong to Russia.

des autres montagnes s'étendant vers le nord, demeureront à l'empire de Moscovie, avec cette clause néanmoins que tout le pays qui est immédiatement entre ladite chaîne de montagnes et la rivière nommée Oudi demeurera indécis, jusqu'à ce que les ambassadeurs des deux partis, étant retournés dans leur pays, ayent pris les informations et les connaissances nécessaires pour traiter de cet article, après quoi on décidera l'affaire, ou par des ambassadeurs ou par lettres.

the Russian river Oud and the aforesaid mountains—running near the Amoor and extending to the sea—which are now under Chinese rule, the question of the jurisdiction over them is to remain open. On this point (Russian) Ambassadors are (at present) without explicit instructions from the Czar. Hereafter, when the Ambassadors on both sides shall have returned (? to their respective countries), the Czar and the Emperor of China (Han) will decide the question on terms of amity either by sending Plenipotentiaries or by written correspondence.

Article II.

De plus, la rivière nommée Ergoné, qui se décharge aussi dans le fleuve Saghalien-Oula, servira de bornes entre les deux empires; en sorte que toutes les terres et pays qui sont au sud de ladite rivière d'Ergoné appartiendront à l'empereur de la Chine; et tout ce qui est au nord demeurera à l'empire de Moscovie. Toutes les maisons et habitations qui sont présentement au sud de ladite rivière d'Ergoné, à l'embouchure de la rivière de Meritken,

Similarly, the river Argun, which flows into the Amoor, will form the frontier along its whole length. All territory on the left (? right) bank is to be under the rule of the Emperor of China (Khan of Han); all on the right (? left) bank will be included in the Empire of the Czar. All habitations on the south side will be transferred to the other.

Article II.

The Ergune (Argun) River, which falls into the Amur, shall form the boundary (on the west). The south bank shall belong to China, the north bank to Russia, and the Russian residences and buildings at the mouth of the Meilorko River, on the south, shall be removed to the north bank.

seront transportées de l'autre côté, sur le bord septentrional de l'Ergoné. (*This latter paragraph is the same as Article II. of the Russian and Chinese texts.*)

Article II.

La forteresse bâtie par les Moscovites, dans le lieu nommé Yacsa, sera entièrement démolie; et tous les sujets de l'empire de Moscovie, qui demeurent dans ladite forteresse, seront ramenés avec tous leurs effets sur les terres appartenant à la couronne de Moscovie.

Article III.

The fortified town of Albazin, built by His Majesty the Czar, is to be completely demolished, and the people residing, with all their military and other stores and equipment, are to be moved into Russian territory. Those moved can take all their property with them, and they are not to be allowed to suffer loss (by detention of any of it).

Article III.

The walled town in the Yacsa country under the government of Russia shall be completely demolished, and the Russian settlers there shall remove all their property and effects to the Ch'a-han-han country without let or hindrance.

Notwithstanding the various discrepancies which occur in the three texts of this treaty, it may be assumed that the boundary of Russia and Northern Manchuria was intended to be the Argun and Gorbitza rivers and the Yablonoi Mountains from the source of the latter river to the sea. Passing over the treaties of 1727, 1768 and 1851, which do not concern the boundaries of Russia and Northern Manchuria, I come to the Treaty of Aigun (Ai-h'un), concluded in May, 1858, the first article of which deals with these boundaries.

FRENCH.

Article I.

La rive gauche du fleuve Amour, à partir de la rivière Argoun jusqu'à l'embouchure de l'Amour, appartiendra à l'Empire de Russie, et sa rive droite, en aval jusqu'à la rivière Oussouri,

CHINESE.

Article I.

The territory on the left bank of the Amur and Sungari rivers from the Erguné River (Argun) to the sea-mouth of the Sungari River shall belong to Russia, while the right bank down

appartiendra à l'Empire Ta-Tsing ; les territoires et endroits situés entre la rivière Oussouri et la mer, comme jusqu'à présent seront possédés en commun par l'Empire Ta-Tsing et l'Empire de Russie, en attendant que la frontière entre les deux Etats y soit réglée. La navigation de l'Amour, du Soungari et de l'Oussouri n'est permise qu'aux bâtiments des Empires Ta-Tsing et de la Russie ; la navigation de ces rivières sera interdite aux bâtiments de tout autre Etat. Les habitants Mantchous établis sur la rive gauche de l'Amour, depuis la rivière Zeia jusqu'au village de Hormoldzin au sud, conserveront à perpétuité les lieux de leurs anciens domiciles sous l'administration du Gouvernement Mantchou, et les habitants Russes ne pourront leur faire aucune offense ni vexation.

river to the Ussuri River shall belong to China, and the country between the Ussuri River and the sea shall, as in the case of well-defined neutral ground between two countries, be held in common by the two Empires. Henceforth the Amur, the Sungari and the Ussuri rivers shall be open to the navigation of Russian and Chinese vessels, but not to the vessels of other foreign countries. The Manchu inhabitants on the left bank of the Amur from the Ching Chi (Zeia) River southwards to the village of Ho-êrh-mo-lo-ching (Hormoldzin) shall continue to hold their villages in perpetuity under the Manchu authorities, and the Russians shall live on friendly terms with them, and forbear from any acts of aggression.

It will be observed that the French text gives the Amur from the Argun River to the sea as the northern boundary of Manchuria, whereas the Chinese text cedes the left banks of the Amur and the Sungari to the entrance of the latter into the sea. As, however, the Sungari enters the Amur and not the sea, and as Russia has not claimed the left bank of the Sungari, it may, I think, be taken for granted that the Sungari has been inserted in the Chinese text by mistake. By this treaty, therefore, the whole of the country between the Yablonoi Mountains and the Amur fell to Russia, and the territory between the Ussuri and the sea was placed under the jurisdiction of both countries, pending, according to the French text, a delimitation of the frontier. The Chinese text is silent on the subject of this delimitation ; but little delay occurred in giving effect to it, for in November, 1860, and in accordance with Article IX. of the Treaty concluded at Tientsin on the 13th

of June, 1858, a Supplementary Treaty was made at Peking and ratified at St. Petersburg in December of the same year. Article I. of this treaty defines the whole of the frontier line of Russia and Manchuria with the exception of the western boundary of Northern Manchuria, already defined in Article II. of the Treaty of Nerchinsk.

FRENCH.

Article I.

Désormais la frontière Orientale entre les deux Empires, à commencer du confluent des rivières Chilka et Argoun, descendra le cours de la rivière Amour jusqu'au confluent de la rivière Ousouri avec cette dernière. Les terres situées sur la rive gauche (au nord) de la rivière Amour appartiennent à l'Empire de Russie, et les terres situées sur la rive droite (au sud), jusqu'au confluent de la rivière Ousouri, appartiennent à l'Empire de Chine. Plus loin, depuis le confluent de la rivière Ousouri jusqu'au lac Hinkaï, la ligne frontière suit les rivières Ousouri et Son'gatcha. Les terres situées sur la rive orientale (droite) de ces rivières appartiennent à l'Empire de Russie, et sur la rive occidentale (gauche) à l'Empire de Chine. Plus loin, la ligne frontière entre les deux Empires, depuis le point de sortie de la rivière Son'gatcha, coupe le lac Hinkaï, et se dirige sur la rivière Bélén-ho (Tour); depuis l'embouchure de cette rivière elle suit la crête des montagnes jusqu'à l'embouchure de la rivière Houpitou (Houptou), et de là, les montagnes situées entre la rivière Khoûn-tchoun et la mer jusqu'à la rivière Thou-men-kiang. Le long de cette ligne, également, les terres situées à l'est appartiennent à l'Empire de Russie et celles à l'ouest à l'Empire de Chine. La

CHINESE.

Article I.

Henceforth the Eastern frontier of the two countries shall extend from the confluence of the Shilka and Erguné (Argun) rivers down the Amur to its junction with the Ussuri River. The country to the north belongs to Russia, and that to the south as far as the mouth of the Ussuri to China. The rivers Ussuri and Sung-a-ch'a shall be the boundary of the two countries from the mouth of the Ussuri southwards to Lake Hinka. The country to the east of these two rivers belongs to Russia, to the west of these two rivers to China. From the source of the Sung-a-ch'a River the frontier line of the two countries crosses Lake Hinka to the Pai-ling River, and from the mouth of the Pai-ling River along a mountain range to the mouth of the Hu-pu-t'u River, and from the mouth of the Hu-pu-t'u River down the Hun-ch'un River and along the range of mountains between that river and the sea to the mouth of the Tumên River. All to the east of this belongs to Russia, all to the west to China. The frontier line of the two countries meets the Tumên River at about 20 *li* from its mouth.

bank of the latter to its confluence with the Sungari. From this point the Sungari to its junction with the Amur forms its southern boundary. Hei-lung-chiang has an area of about 190,000 square miles and is the largest of the three provinces. In the west a range of mountains, called the Great Hsing-an Range, runs north and south from the Amur into Mongolia, and in lat. 48° N. and long. 127° E. two ranges, known as the Little Hsing-an, meet, one going north to the west of Aigun, the other east towards the junction of the Sungari and the Amur. From these lesser ranges branch east and west and north and south. In the western range, and about sixty miles from the Argun River, rises the Nonni, the most important waterway flowing *through* the province. On its way to the Sungari, which it joins at Shui-shih-ying-tzŭ, twenty miles to the north of the town of Petuna (Hsin Ch'êng), it passes on its left bank the town of Mergen and Tsi-tsi-har, known to the Chinese as Pu-k'uei, the capital of the province. It is navigable by large junks from the Sungari as far as the capital and by junks of light draught to Mergen. The only other waterways of any importance falling from the north into the Sungari are the Hulan and T'un rivers. A number of streams flow northwards into the Amur. They are unnavigable, but of considerable importance commercially on account of the gold found in their sandy beds. The Amur and the Sungari are both navigable, and steamers of light draught ascend the former from Habarovsk, on the right bank of the Amur, at its junction with the Ussuri, to Pokrovskaia, a little to the east of the confluence of the Shilka and Argun, whose combined waters go to form the Amur. The Shilka, too, is navigated by steamers as far as Stretensk, and in favourable seasons to Mitrofanov, while the Argun is also navigated for over 700 versts, or 460 miles. The distance from Habarovsk to Stretensk is 2,115¾ versts, or 1,407⅙ miles, and to Mitrofanov 2,252½ versts, or 1,501⅓ miles, and if to

this be added the distance (939¾ versts) from Habarovsk to Nikolaevsk, near the mouth of the Amur, it will be found that the Amur and the Shilka together are navigated by steamers for 3,192¼ versts, or 2,128⅙ miles. The Sungari, which falls into the Amur 241 versts, or 160⅔ miles, above Habarovsk, is regularly navigated by steamers from its mouth to Petuna, a distance of 965 versts, or 643⅓ miles, and I have seen a couple of steam launches even at the city of Kirin itself. The navigation on all these rivers is restricted to from May to October, for during the rest of the year they are ice-bound.

The mountain ranges of Hei-lung-chiang, which are mostly volcanic, are thickly clad with forests, and the agricultural area is as yet confined to the river valleys, especially those of the Nonni and Hulan. A great part of the south-west of the province is occupied by Mongols, who graze their herds on the grass-covered steppes, which still remain untouched by the hoe of the cultivator. Much of this virgin soil is low lying, and liable to inundation during the rainy season in July and August. Emigrants from the south are, however, gradually pushing northwards in spite of official discouragement. Hei-lung-chiang is the Tasmania of China, and the unwilling immigrants are mostly Manchus who, if officials, have to do duty on the post roads at their own expense for a certain term of years, and, if common people, are handed over as slaves to the Manchu inhabitants, or left to find their own livelihood under official surveillance. As a rule, the ordinary criminals banished to Hei-lung-chiang never leave the province: many of them escape and turn brigands, terrorising and plundering the peaceably disposed traders and farmers. Criminal officials, on the other hand, sent to do duty in Hei-lung-chiang, usually succeed, after serving a portion of their sentence, in having the remainder remitted in consideration of a money payment for each year of the term unexpired. I shall have occasion to refer to the

subject of brigandage later: suffice it to say in this place that it is the scourge of this, and of Kirin, the Central, province. A considerable part of the steppes of this province is, however, impregnated with soda and other salts and is unfit for cultivation. The extraction of the soda is an industry of Hei-lung-chiang, and the surplus manufactured article in the form of bricks or cakes is brought down to Tientsin and Newchwang, whence it is exported principally for use in the native dyeing and silk-reeling establishments in Northern China. The province is rich in gold in the north-west, north and east, on the banks of the Amur and in the beds of its tributaries. The Mo-ho mines, where a native company, under Government license, has been at work since 1888, are the best known of the gold mines near the Amur. They are 70 *li*, or about 23 miles, south of the village of Mo-ho, and lie on the banks of a streamlet flowing into a small river which joins the Amur just below the Russian village of Albazin. Other mining camps on the south bank of the Amur are T'ai-p'ing-k'ou, between the Russian villages of Hingan and Pompeevka, and Kuan-yin-shan, opposite Raddevka. Previous to 1888 gold washing was clandestinely carried on, and trouble arose owing to a large number of Russian subjects crossing the Amur and taking part in it. It was promptly suppressed by the Hei-lung-chiang authorities in 1887, and the mining was thereafter placed under Government control. A consignment of arms and ammunition was brought to Newchwang in 1896 under official pass by steamer from Tientsin for conveyance to the mines to ensure more efficient protection, and when I visited Mo-ho during the present year I was informed by the villagers that additional soldiers were expected to arrive soon. Gold is also found on the banks of the Sungari, and I shall refer to this when I come to deal with the province of Kirin. Copper and lead are also said to be found in the Northern and Central provinces of Manchuria; but, so far as

Hei-lung-chiang is concerned, no locality is mentioned. Game abounds in the mountains and on the steppes, and includes the tiger, bear, leopard, deer, antelope, roe-deer and wild boar. Such animals, again, as the sable, squirrel, weasel, land-otter, wolf, hare, badger, wild-cat and fox are hunted for their skins. Then comes winged game, including bustard, swan, goose, duck, black-grouse, wood-cock, partridge, pheasant, snipe and quail. It sounds an excellent ground for the *shikari*, who, however, runs the danger of himself being hunted down by brigands or eaten up by venomous midges, mosquitoes and gadflies. Herds of ponies, cattle, pigs and sheep graze on the grassy steppes. From the above it will be concluded that the area under cultivation in the province of Hei-lung-chiang is not very extensive, and such is the case. Agriculture is at present confined for the most part to the small river valleys—in other words, to the country taken up by the Chinese colonists, who are gradually pushing their way northwards and settling down on this virgin soil. But with agriculture I shall deal afterwards, under the head of "Agricultural Products". The Amur and the Sungari and their tributaries teem with a great variety of fish, including the sturgeon and trout, and in the autumn with incredible shoals of a species of salmon called *tamara*, which ascends these rivers to spawn.

Kirin, the Central province, lies to the south of Hei-lung-chiang, and is bounded on the north by a part of Mongolia, the Sungari from its junction with the Nonni to its mouth, and by the Amur to the mouth of the Ussuri; on the east by the Ussuri and its tributary the Sung-a-ch'a to its source, thence by a line drawn to Lake Hinka and across the lake to the mouth of the Pai-ling River, by a range of mountains lying between that point and the mouth of the Hu-pu-t'u, an affluent of the Sui-fên River, which enters the bay on which Vladivostock is situated, by a line from the mouth of the Hu-pu-t'u to the

Hun-ch'un River, by the latter as far as a range of mountains lying between the Hun-ch'un River and the sea, and by this range to a point on the left bank of the Tumên River twenty Chinese *li* from its mouth; on the south by the Tumên River to its source, thence by a line to the source of the Ya-lu, and by that river to the village of Mao-êrh-shan, which lies on the right bank and within the southern province of Fêng-t'ien; on the south-west by a line running north-west from east of Mao-êrh-shan to the immediate south of Wei-yüan-p'u-mên in the Eastern Palisade, and to the north of the district city of K'ai-yüan, where one of the final struggles between the Chinese and the Manchus took place; and on the west by part of the province of Fêng-t'ien and Mongolia.

Kirin has an area of about 110,000 square miles. Its capital, also called Kirin or Ch'uan-ch'ang ("Dockyard"), lies on the left bank of the Sungari in lat. 43° 49′ N. and long. 126° 46′ 27″ E. The province is divided into three parts by the Sungari, the Hurka and the Ussuri. I have already referred to the navigability of the Sungari, and steamers ascend the Ussuri to Iman, 380 versts, or 253½ miles, from Habarovsk at its mouth. By Article I. of the Treaty of Aigun, quoted above, the navigation of the Amur, Sungari and Ussuri is restricted to Russian and Chinese vessels. The number of steam-vessels engaged in towing and carrying passengers on these three rivers above Habarovsk is placed at one hundred and twenty, whereof eighteen fly the flag of the Chinese Eastern Railway Company, consisting of the Chinese flag with the Russian flag inserted in one of the corners, while the balance of over one hundred fly the Russian flag. I can safely say that along the whole course of the Amur I noticed little more than half a dozen Chinese junks in May and June of the present year. The section of the province to the west of the Sungari—an eastern prolongation of the Mongolian steppes—

consists for the most part of fine level loamy soil well under cultivation and forming, so far as agriculture is concerned, the richest part of the province. This section contains the most important commercial mart of Manchuria—the city of K'uan-ch'êng-tzŭ or Ch'ang-ch'un Fu, which lies eighty miles west of the capital, and is the collecting and distributing centre for exports from and imports to Hei-lung-chiang and Northern Kirin. Much of the northern part of the section between the Upper Sungari and the Hurka is still virgin steppe awaiting the hand of the Chinese cultivator, who is displacing the indolent and less practical Manchu farmer and trader throughout Manchuria. In the river valleys the husbandman is at work, but the south is given up to the Chinese trapper, lumberer, ginseng collector and grower and the hunter for gold, who, scattered about among the Ch'ang-pai-shan ranges, are unfettered by Government control. The highest point of this range is the Ch'ang-(or Lao-)pai-shan, *i.e.*, "Ever (or Old) White Mountain" (8,000 feet), so called from the pumice which surrounds its crater, wherein is a lake some six or seven miles in circumference more than 300 feet below the summit. The other lakes of Kirin are part of Lake Hinka and the A-pu Lake (Lake Birten), through which the headwaters of the Hurka flow to the south-west of Ninguta. The Ever-White Mountain is held sacred by the Manchu dynasty as the reputed birthplace of its founder Nurhachu. It is, however, no myth to say that it is the birthplace of three rivers—the Sungari, the Ya-lu and the Tumên. The section between the Hurka and the Ussuri is far less developed and cultivated than the section between the Sungari and the Hurka. The right bank of the former, from the mouth of the latter eastward, is inhabited to a great extent by the Yü-p'i-ta-tzŭ, or Fish-skin Tartars, who derive their name from their clothing, which they manufacture from the skins of the Tamara salmon. Here, however, the banks of

the Sungari are rich in gold, especially in the neighbourhood of the town of Sang-sing, which lies to the east of the Hurka at its junction with the Sungari. When in Kirin in 1896 I met, and had a long conversation with, a Taotai who was on his way to San-sing to take up an appointment as director of a gold-mining company under Government license, and I have since heard that the results obtained by the company from washings average about thirty-six Chinese ounces, or three lb. avoirdupois, per day—sufficient to pay the wages of the employés, ensure the necessary protection to the workers, and leave a margin of profit to the shareholders. Gold is also worked on the Upper Sungari, in the valleys of the affluents of the Ya-lu near its source, and on both banks of the Hurka. Silver, associated with lead and copper, is worked in the south of the province. Coal is found in many places in Kirin, and in the capital it is placed on the market at from six to twelve shillings a ton according to quality. The inferior quality is very soft and burns rapidly. It comes down the Sungari. Coal is also found in the south-east and in the west of the province, and the Kirin Coal Company, which is under Government auspices, has opened up mines on the west at a place distant twenty miles from T'ung-chiang-zŭ, the highest navigated point on the Liao River, on which the port of Newchwang stands. Foreign plant was purchased for the purpose, and was transported into the interior by cart during the winter of 1897-98. The usual trees met with by the traveller in Kirin are the willow and elm, with scrub-oak on the low hills and a sprinkling of pine; but the mountains of the province are covered with valuable forests of oak, elm, pine, walnut, birch, spruce and plane, with dense undergrowth. The great lumber market of Manchuria is Ta-tung-k'ou, on the right bank of the Ya-lu near its mouth, whither huge logs from the Ch'ang-pai-shan ranges find their way down that river and its tributaries, especially the Hun or Tung-hua Chiang. Much red

and yellow pine is floated down the Sungari to the capital, where it is used not only for junk-building, but also, owing to its comparative cheapness, for the gigantic fencing of houses and compounds. On the left bank of the Sungari at Kirin I noticed several large caravansaries closely surrounded by stout logs of pine frozen vertically in the ice and as high as a hoarding at home. As might naturally be expected, these forests afford cover to game of all kinds, from the tiger and bear downwards. Wild boar, deer, antelope, pheasant and partridge were all exposed for sale in a frozen state in the streets of Kirin during my stay there. Nor should I omit to mention a great variety of fish from the Sungari, which lay about in frozen heaps. Of these we found the sturgeon excellent eating. The game and fish remain good throughout the winter, and I afterwards saw them in many places through which we passed.

Fêng-t'ien, the Southern province, although the smallest of the three—having an area of about 60,000 square miles—is, owing to its proximity to China, comparatively well developed, and as it is the only province now possessing a seaboard, and a consequent outlet for nearly the whole produce of Manchuria, its importance from a commercial standpoint will be readily recognised. The boundary on the east is the Ya-lu from east of Mao-êrh-shan to its mouth; on the south are the Yellow Sea, the Liao-tung Gulf as far west as Shan-hai-kuan, and part of the province of Chihli; on the west are Chihli and Mongolia, and on the north part of Mongolia and Kirin. A range of hills starting in the south of the Liao-tung Peninsula and running north-east to the province of Kirin divides Fêng-t'ien into two parts—the western or level, and the eastern or hilly section. In the latter a number of ranges extending to the Ya-lu run from the south of the province parallel to this range, while the western section forms the valleys of the Liao, the most important commercial waterway in Manchuria, which,

ising in Mongolia, where it is known as the Sira-muren, flows outh by west into the Liao-tung Gulf, passing on its left bank t a few miles from its mouth the open port of Newchwang—alled locally Ying-kow and Ying-tzŭ—of the Hun River, the Liao's most important tributary, and of several smaller rivers which also flow into the Liao-tung Gulf between the Liao tself and the Chinese frontier.

There are sulphur and other mineral springs between Hai-h'êng and Liao-yang and in several other places in the province, ut the sulphur is not extracted.

The hills of Fêng-t'ien are rich in carboniferous strata, more specially in the centre of the province to the east of the high-oad between the port of Newchwang and Moukden. The oal mined there, called Liao-yang coal, from the name of the ub-prefecture within which it is found, is declared to be equal o the best Cardiff, and it is certainly excellent, but, owing to he constant flooding of the mines during the rainy season and he absence of pumping gear, the price per ton laid down at he port has risen from $7 in 1893 to $14 (about £1 8s.), which is altogether prohibitive and bars all possibility of export. Coal also exists in the hills to the north-east of Moukden, in he west where the coal measures of Chihli extend into Fêng-'ien, and in the east and south of the province. Peat is also ound in the east of the Liao-tung Peninsula. Iron is worked ithin the district of T'ieh-ling, forty miles north by east of Moukden and in proximity to coal, as well as in other parts f the province; but the large supply of cheap old foreign iron which finds its way into Manchuria through the port of New-hwang competes successfully with the native manufacture. Gold exists in Fêng-t'ien, and works have been opened and bandoned: but it does not follow that lack of gold is the ause of the failure. One of the difficulties under which gold-ining labours in Manchuria recently came to my notice. The

gold-mining company at San-sing, in the Kirin province, to which I have referred above, had in its employ and for its protection a force of 200 cavalry and 700 infantry. Two of the cavalry officers were captured by brigands, who demanded for their release a ransom of 300 and 200 ounces of gold-dust respectively. Is it likely, therefore, that where a protected company is attacked, private enterprise could succeed? An inferior kind of jade stone is quarried within the district of Hsiu-yen, some sixty miles to the south-east of the port of Newchwang, and is exported in small quantities in the shape of carved ornaments. The hills to the east and south are of igneous formation, and excellent granite can be had. Towards the Ya-lu and to the north-east there are forests of splendid timber, affording cover to game of all kinds. Along the seaboard from the Ya-lu to Shin-hai-kuan there are, in addition to Newchwang, a number of ports, some of them open all the year round, where a considerable trade is carried on by native shipping. I shall have occasion to refer to this subject at greater length under the head of "Trade".

The climate of Manchuria may be described as extreme. In the Hei-lung-chiang province the temperature falls as low as 49° below zero (Fahrenheit) in winter, and rises as high as 90° in summer. On the morning of the 19th of January, 1896, whilst I was in Kirin, the temperature fell to – 34° in that city, and the average minimum from the 15th to the 28th of January was – 20°. The maximum temperature in summer is about 95°. In Moukden the lowest reading in winter is about – 28°, and the highest in summer about 96°. In the port of Newchwang the temperature was once as low as – 17° during the winter of 1894-95, but in 1895-96 it only fell once below zero; in summer it rarely exceeds 85°. From the beginning of December to the end of March all water-borne traffic ceases to the north of Newchwang, the whole country being ice-bound during these

nonths.[1] The ports in the south of the Liao-tung Penin-ıre, however, open all the year round. In the north of huria snow falls to a depth of two or three feet, while in hwang it rarely exceeds twelve inches. The summer heat ınchuria is dry and easily endured, but the winter cold is ıe, especially when a north-east wind blows. The rainfall ıll, usually averaging about thirteen inches, half of which ıs a rule in the months of July and August.[2] When the ry is ice-bound the roads in the interior, bad at their are suitable for cart traffic; when it begins to thaw, and

)n the Amur, in May, I noticed blocks of ice on the river banks, and p in shallows from eight to ten feet thick, and the following table gives the of observations on the thickness of ice on the Liao River at Newchwang the years 1897 to 1900.

Thickness in inches of ice in the river at Newchwang, 1897-1900.

Date.	Maximum.	Minimum.	Mean.	Remarks.
28 Jan.	16·5	11·5	14·0	
11 Feb.	20·0	17·0	18·5	
20 ,,	19·5	14·5	16·5	
2 Mar.	18·0	15·0	16·9	
12 ,,	12·0	10·5	11·2	Ice broke up 16th March.
13 Jan.	19·0	16·5	17·8	
9 Feb.	20·0	15·5	17·9	
22 ,,	21·5	18·0	20·3	
2 Mar.	23·5	19·0	21·4	
14 ,,	22·0	19·0	20·1	
24 ,,	23·0	19·0	22·0	
29 ,,	19·0	16·0	18·3	Ice broke up 2nd April.
13 Feb.	17·0	10·5	15·6	
2 Mar.	17·0	9·0	12·6	Ice broke up 10th March.
15 Jan.	23·0	13·5	17·1	
9 Feb.	22·8	19·5	21·3	
20 ,,	23·0	20·0	21·7	
27 ,,	23·5	21·5	22·5	
6 Mar.	24·0	20·0	21·6	
15 ,,	21·0	18·0	19·8	
20 ,,	18·0	14·75	16·7	Ice broke up 23rd March.

n Appendix I. will be found a tabulated record of meteorological observa-ıade at Newchwang for the year from September 7th, 1896, to September 97.

during the rainy season, the soft loam of which they are composed (I do not say made, for that would be a departure from truth) becomes a veritable quagmire, wherein animals are frequently suffocated or drowned. Climate, therefore, has a very important influence on the traffic of Manchuria, as I hope to show later when I come to deal with the trade of the country, and it will continue to exercise that influence until railways connect the three provinces and bring the remote districts of Hei-lung-chiang within as many hours of the Yellow Sea or Liao-tung Gulf as they now are days.

CHAPTER VI

PEOPLE AND ADMINISTRATION

IT is not my intention to write a history of the Manchus—of their origin, their rise and their conquests. The student of history will find all these details elsewhere. What I wish to do is to lay before the reader a picture of Manchuria of to-day—of its people, administration, products, industries and trade, to call attention to its capabilities and resources, and to show how these capabilities and resources may be utilised and developed. In the preceding chapter I have dealt with its boundaries, physical features and climate, and in the present chapter I propose to discuss the people and administration of Manchuria.

Of the 17,000,000 inhabitants of the three provinces of Manchuria probably not more than ten per cent. are Manchus, and by Manchus I mean not merely the descendants of the various tribes which were welded into one kingdom by Nurhachu, but also the descendants of the inhabitants of the Northern Province of Hei-lung-chiang, which was not brought completely under the sway of the present dynasty until 1671, as well as the descendants, called Han-Chün, of the northern Chinese, who assisted the Manchus in the conquest of China. All these—Manchus, Han-Chün, as well as the descendants of Mongols, who also lent their aid—are known by the generic name of Ch'i Jên, or Bannermen. When the Manchus conquered the Chinese the great mass of the conquerors remained in China, where they were required to garrison their newly-acquired territory, and

even now there are Manchu garrisons in several provinces of the Empire. The descendants of those who stayed at home are scattered over Manchuria from the Yellow Sea to the Amur; but the vast majority are to be found in the two provinces of Hei-lung-chiang and Kirin. There are, however, certain places in Fêng-t'ien, such as Fu Chou and Hsiung-yüeh (Hsiung-yao) in the Liao-tung Peninsula, where Bannermen predominate, and in the chief Government centres, especially the capitals of the three provinces—Moukden, Kirin and Tsitsihar (Pu-k'uei)—they are comparatively numerous. Mongols are sparsely scattered about in the south-west of Hei-lung-chiang and in the north-west of Kirin, but ninety per cent. of the seventeen millions of Manchuria are composed of the descendants of Chinese who had already settled in Southern Manchuria during the Ming dynasty, and of immigrants from the northern provinces of China, who are annually on the increase.

Some people profess to be able to see at a glance numerous ethnological points of difference between Manchus and Chinese. If they are right my powers of observation must be exceedingly limited, for I am bound to confess that, in spite of frequent opportunities for comparison, I am unable to distinguish a Manchu from a Chinese gentleman. They dress alike, and to all outward appearance they are members of the same family. With the other sex it is different. There can be no mistake about a Manchu lady. Her erect carriage, due, no doubt, to her natural feet, her distinctive coiffure and dress[1] at once

[1] "The dress of Manchu women is in all its main points very similar to that of men—the same underclothing and similar loose flowing robes. Of these latter there are two, which differ slightly one from the other, the inner robe (*ch'en i*) having an unbroken skirt, and opening merely at the throat with a breast lappet fastening down the left side; the outer robe (*ch'ang i*) is similarly made, but has an opening (*k'ai chieh*) on either side, extending from the waist down to the hem. These robes being of figured gauze, silk or satin, with a deep border of embroidery—some four inches wide—running along the skirt and

mark her as non-Chinese. Notwithstanding her erect carriage, however, her gait is slovenly, and is due to the thick inelastic soles of her shoes. These traits are, properly speaking, not ethnological distinctions; but I have always been struck by the independent bearing and sprightliness of the Manchu lady in contrast to the timidity and insipidity of her Chinese sister.

Intellectually, however, the Manchu is no match for the Chinese. The former lacks the intelligence and capacity which are characteristic of the latter, and the recent replacing in many of the higher offices of the Empire of Chinese by Manchus cannot fail to be detrimental to the best interests of the country. As merchant or farmer, too, the Manchu lacks the business qualities and industry of the Chinese. This intellectual inferiority is due, in the main, to the grant by the State to the majority of Manchus of mature age of a monthly subsidy which,

central and side openings, present a very handsome appearance, which is increased by the deep cuffs, usually of some light-coloured silk, in contrast with the dark texture of the robe, embroidered in light colours with flowers or butterflies. Their feet are of the natural size, the shoes worn by those who have to go about on foot being much like men's ordinary shoes, of silk and satin embroidered, with flat soles. In the case of ladies, however, who when they go out do so in a chair or cart, the shoes stand upon a sole of four or six inches in height, or even more. These soles, which consist of a wooden frame upon which white cotton cloth is stretched, are quite thin from the toe and heel to about the centre of the foot, when they curve abruptly downwards, forming a base of two or three inches square. In use they are exceedingly inconvenient, but, like the long nails, with their metal sheaths of gold or silver, affected by Chinese ladies, they show the well-to-do position of the wearer. The Manchus are naturally a taller and finer race than the Chinese, and the artificial increase to the height afforded by these shoes gives them at times almost startling proportions.

"There is little difference between the private dress of ordinary Manchu women and that of those belonging to the official class. The latter, however, always have the two robes above described, while the former frequently, in lieu of the outer robe, wear a sleeveless bodice, either long, and reaching to the skirt of the robe (*kua la'rh*), or short, to the waist only (*k'an ch'ien*), with an embroidered border round the edges."—*Illustrated Catalogue of the Chinese Collection of Exhibits for the International Health Exhibition*, London, 1884, pp. 13, 14.

while keeping them from actual want, precludes that stimulus to earn a livelihood and better their condition which goes to make men and nations. In return for this subsidy the Government exacts a certain amount of military training from the recipients and their enrolment as reservists; but the system does serious harm, for it prevents the pensioner from leaving the neighbourhood of the pension office and turns him into a loafer, unless, indeed, he chooses the army as a profession and draws the pay of a regular. There are, for example, many Bannermen in the employ of foreigners at Peking; but, as there is considerable difficulty in drawing the Government subsidy *in absentia*, they are, as a rule, unwilling to take service elsewhere even at considerably enhanced pay.

The Manchu language, unlike the Chinese, has no antiquity to boast of, and, at the present time, it is to all intents and purposes a thing of the past. In the remote corners of the provinces of Kirin and Hei-lung-chiang, where Tartar tribes have kept themselves isolated and beyond the tide of Chinese immigration, it is still spoken, and proclamations in Chinese and Manchu are met with; but, with this exception, Northern Chinese is now the language of Manchuria. It is still taught in a desultory way, and in 1899 the Empress-Dowager sent special instructions to Moukden and Kirin calling upon the provincial authorities to raise the standard of education in the Manchu schools there and bring them into line with the schools of Peking. At the time when Nurhachu was carrying on his conquests in Manchuria and welding the various chieftainships into one kingdom there was no Manchu chirography, and recourse was had to Mongol as the intermediary in distant communications. Then it was that the necessity of possessing an independent written language was realised, and Nurhachu gave orders for its construction. This was accordingly done, Mongol being taken as the basis of the new writing. The

Manchu language contains twenty-five letters or characters, six vowels and nineteen consonants, and the writing consists in drawing a straight line from top to bottom of the page and in adding on either side of the line with a Chinese pen the strokes and curves necessary to form the letters and words. It embraces all the parts of speech, and is essentially a simple language, possessing, thanks to its constructors, only one gender. While in Chinese writing the reader begins at the top right hand corner of the page, in Manchu he starts at the top left hand corner, in both cases reading downwards.

The standard of education in Manchuria, from a Chinese point of view, is not of a very high order, and comparatively few literary honours have fallen to its inhabitants; but it must be remembered that the Chinese immigrants from Shantung and Chihli are exceedingly poor and illiterate, and, in the country districts, sparsely scattered over a very large area, so that educational facilities are not yet so well organised as in China Proper. Another reason is that, while the degree of licentiate may be obtained at Moukden, the provincial degree, which can be gained at the capital of each province in China can, like the metropolitan degree, be competed for by the students of Manchuria only at Peking.

The administration of Manchuria was originally conducted on a purely military basis; but the southern province of to-day resembles in its form of government the provincial administration of China. There is a difference, however, and it is this. At Peking there are six Boards for the transaction, each in its own department, of all public business referred to them. They are: (1) Board of Civil Office, (2) Board of Revenue, (3) Board of Ceremonies, (4) Board of War, (5) Board of Punishments, and (6) Board of Works. With the exception of the first, the Board of Civil Office, these boards have their counterparts at Moukden, and each of the five boards, established in 1631, is

presided over by a vice-president, who, in his own special department, is a colleague of the head of the province, the Governor-General.

In 1644, the first year of the reign of Shun Chih, the first emperor of the present dynasty, the government of Shên-yang was entrusted to a Chamberlain of the Imperial Court in conjunction with two Deputy-Lieutenant-Generals and a Military Secretary or Adjutant; in 1646 an An-pang (Amban) took their place; in 1662 the title of Amban was changed to that of Military Governor (Chiang Chün) of Liao-tung; in the following year to Military Governor of Fêng-t'ien; in 1671 to Military Governor of Shêng-king; and in 1876 the Military Governor was created Governor-General of Fêng-t'ien. As Military Governor he was, prior to 1898, Commander-in-Chief of all the forces within his province, with the exception of the garrison in the south of the Liao-tung Peninsula at Port Arthur and in its immediate neighbourhood, which was, for imperial purposes, under the control of the Superintendent of Trade for the Northern Ports, who is at the same time Governor-General of the Metropolitan Province of Chihli. In March, 1898, this garrison was, in accordance with Article IV. of the Port Arthur Agreement,[1] withdrawn to make room for Russian troops, and it is now stationed between the Liao River and Shan-hai-kuan. With this exception, then, the Military Governor is Commander-in-Chief of all the Banner and Chinese forces within the province of Fêng-t'ien. He is also High Commissioner in charge of the defences of the whole of Manchuria, and in this capacity, when the defences of Kirin or Hei-lung-chiang are concerned, he has as colleagues the Military Governors of these provinces.

It will be more convenient, however, to deal first with the civil administration. In 1657 Shên-yang was made a prefecture

[1] *Vide* Chapter II.

under the name of Fêng-t'ien Fu, which embraces the region enclosing Moukden, the capital, and a Civil Governor was appointed. Four years later the Civil Governor was further invested with the duties of Literary Chancellor; but in 1664 the office of Vice-Governor was created, and the post of Provincial Literary Examiner withdrawn from the Civil Governor and conferred on the Vice-Governor. In 1876 the Civil Governor was given the rank of a Provincial Governor in China, and as such he is a colleague Governor-General. The office of the latter at Moukc , v e these three officials reside, consists of a number of d tı ı -secret , clerical, official despatch receiving office, t ıt of t five Boards (each of which, again, including its vice ıt, has a staff of secretaries, writers, etc., ranging fr tv ıty-three in the case of the Board of War to fifty-three in the Board of Punishments), military gendarmerie, police, paymaster, hunting ground, pasturage, stud and cart and goods tax offices. It would only weary the reader and serve no useful purpose to enter into details regarding the composition and duties of the staff of each Board. This chapter is intended to give merely a general description of the administration of Manchuria, the details of which would themselves fill a volume and occupy more time than I have at my disposal. I should not omit to mention here, however, that within the last few years offices for the consideration of international questions have been established at Moukden and Kirin (the capital of the Central province). They are advisory bodies, each consisting of several official members, whose duty it is to consider and tender to the Governor-General and Military Governor respectively advice regarding such international cases arising in the two provinces as the Heads of the Government consider of sufficient importance to be referred to them for an opinion.

There are three Taotais or Intendants of Circuit in the

province of Fêng-t'ien. They are the Yi Hsün Tao, stationed at Moukden, who to a great extent fills the position of Judicial Commissioner of a Chinese province; the Fêng-Chin-shan-hai Tao, who exercises territorial jurisdiction over the prefectures of Fêng-t'ien Fu and Chin-chou Fu and the city of Shan-hai-kuan to the immediate south of the Great Wall, and resides at Ying-kow, the port of Newchwang, where, in addition to being in charge of the native Customs within his Intendancy, he is Superintendent of the Foreign Customs; and the Tung Pien Tao, or Intendant of the Eastern Frontier, who resides at the city of Fêng-huang T'ing, and has territorial jurisdiction over the sub-prefectures of Fêng-huang and Hsing-ching (or Hsing-king), the department of Hsiu-yen, and the four districts of T'ung-hua, Jên-huai, An-tung and Kuan-tien. These three Intendancies were established in 1876, 1866 and 1877 respectively. A Taotai or Intendant of Circuit is, generally speaking, an official exercising administrative duties over two or more prefectures, with control over the military forces within his jurisdiction. The Yi Hsün Tao has no military control; the other two Intendants have.

A prefecture is a provincial sub-division administered by a Chih Fu or Prefect, who exercises control over the second-class sub-prefectures and districts which constitute his jurisdiction. There are three such prefectures in the province of Fêng-t'ien—Fêng-t'ien Fu, which embraces Moukden, the capital, established in 1657, Chin-chou Fu in 1665, and Ch'ang-t'u Fu (Yü-shih-ch'êng-tzŭ) in 1877.

Next to prefectures come sub-prefectures, designated *T'ing*. There are six of these in Fêng-t'ien—Hsin-min T'ing (1798),[1] Hai-lung T'ing, Hsing-ching T'ing (1877), Chin-chou T'ing (1843) formerly called Ning-hai Hsien, Fêng-huang T'ing

[1] The figures in parentheses represent the years in which the sub-prefectures, departments and districts were established.

1876) and Ying-k'ou T'ing (1866). The official in charge of he last is a maritime sub-prefect, who resides at the port f Newchwang, where he acts as police magistrate without erritorial jurisdiction.

Then come departments (*Chou*), of which there are five— 'u Chou (1734), Hsiu-yen Chou (1876), Ning-yüan Chou 1664), Yi Chou (1734) and Liao-yang Chou, which, originally . prefecture, was reduced to a district when Fêng-t'ien Fu vas established, and in 1664 raised to its present rank.

There are fourteen districts (*Hsien*), each with its district ity and magistrate. They are: Ch'êng-tê Hsien (1664), he senior district because it contains Moukden, the capital, Hai-ch'êng Hsien (1653), Kai-p'ing Hsien (1664), once a lepartment or *chou*, K'ai-yüan Hsien (1664), T'ieh-ling Hsien 1664), K'ang-p'ing Hsien (1876), Fêng-hua Hsien (Maimai- ai) (1877), Huai-tê Hsien (Ta-pa-chia-tzŭ) (1887), Kuang- ing Hsien (1665), Chin Hsien (1665), Tung-hua Hsien (1877), Huai-jên Hsien (1877), An-tung Hsien (1877) and Kuan-tien Hsien (1877).

Mr. Mayers, in his book on the Chinese Government, dmirably expresses in a single paragraph the duties of pre- ects and magistrates. "They constitute," he says, "the eneral administrative body of the provincial civil service. They are charged with the collection of revenue, the main- enance of order, and the primary dispensation of justice, s well as with the conduct of literary examinations and of he Government postal service, and in general with the exercise f all the direct functions of public administration."

By Government postal service is meant the transmission of fficial documents; but there is, in addition to this, a courier lepartment, with a head office at Moukden, for the conveyance f despatches along the main roads of the province. The staff at Moukden consists of a superintendent, assistant superintendent

and two second-class secretaries, with twenty-nine postmasters at different cities and places in Fêng-t'ien. In the interior of China and Manchuria ordinary correspondence has always been attended to by private native post-offices without Government control; but the Chinese Government have recently organised, through the Inspector-General of Customs, an Imperial Post, which, at first established at Peking and the open ports only, is now extending its operations further afield. Official pressure has been brought to bear on the native post-offices to compel them to transmit and receive through the Imperial Post all mail matter entrusted to them, and in Manchuria, with the port of Newchwang as a head office, branch offices of the Imperial Chinese Post had up to the 10th of February, 1900, been opened at Chin-chou Fu and T'ien-chuang-t'ai on the road to Tientsin; at Kai-p'ing Hsien (Kai Chou), Hsiung-yao and Wa-fang-tien in the Liao-tung Peninsula; and at Hai-ch'êng Hsien, Niuchuang, Liao-yang Chou, Moukden, T'ieh-ling Hsien and K'ai-yüan Hsien on the main highroad from the port to the north. Other branches were soon to be opened at T'ung-chiang-tzŭ, Ch'ang-t'u Fu, K'uan-ch'êng-tzŭ (Ch'ang-ch'un Fu) and Kirin.

The district magistrate is the lowest territorial and administrative official; but at several important places in Fêng-t'ien there are assistant magistrates, who are directly responsible to the magistrate of the district within which they are stationed.

The above officials constitute the civil administration of Fêng-t'ien; but I should not omit to mention in a few words what may be termed the self-government of the country. Every village of any size contains one or more, and every town or city several, Headmen (Hsiang-yao), elected by their fellow-villagers and townsmen, and approved of by the civil local authority of the district. The duties of a Headman are many and varied. He is called upon to settle disputes among his constituents, to

represent them in case of litigation in local courts, and, in general, to be the intermediary between them and the civil power. He has at the same time to report whatever of importance occurs within his ward or constituency. For example, the magistrate numbers among his multifarious duties the office of Coroner, and the Headman has to report without delay every case of sudden or suspicious death, fatal accident or murder. In land transactions he is constantly in demand. His seal on a deed is a guarantee that the document is in order, that the lessor or seller is entitled to lease or sell the land to which the deed refers, and that the District Magistrate, who is also Land Registrar, may register the land and seal the deed without fear of future complications. I am here, more especially, referring to a lease or sale by Chinese to foreigners, when more than usual care is taken as to the validity of the document.

The gentry and merchant guilds also play a prominent part in local government, their power and influence being much greater than is generally supposed. When Chinese from one province of China settle in another one of their first acts is to establish a guild or guilds in the centres where they reside. These, primarily formed for the protection of their members, gradually assume to themselves municipal functions, and for many reasons, chiefly financial, they are looked upon with favour by the local authorities. They can always be relied upon for contributions, and are useful bodies to conjure with when any scheme of betterment is propounded from without. The opposition of the gentry and guilds can always be cited as a powerful lever to block reforms and palliate inaction.

The port of Newchwang was opened to foreign trade by the Treaty of Tientsin of 1858, ratified at Peking on the 24th of October, 1860; but, prior to that date, Chinese traders from other provinces had settled in Fêng-t'ien, and guilds were already established by natives of Chihli, the San Chiang, Shan-

tung and Shansi at Moukden, of San Chiang, Shantung, Shansi and Fuhkien at Kai-p'ing Hsien, of Shantung at Chin-chou T'ing, of Fuhkien at Kai-p'ing Hsien, and of Anhui at Chin-chou Fu. In the early days Moukden, Kai-p'ing Hsien and Chin-chou T'ing were the chief commercial centres; but, on the opening of Newchwang in 1861, trade left the old channels and gravitated to the new port. The result was that clubs (Kung So), representing the San Chiang, Canton and Fuhkien provinces, were inaugurated at Newchwang. These are supported by a voluntary tax on all goods imported and exported by the members. To each club is attached a mortuary, where the remains of members and fellow provincials are deposited pending their removal to their native places. When the bubonic plague, referred to in another chapter, broke out in Newchwang in the summer of 1899 the victims were coffined and deposited in these mortuaries, and one of the great difficulties with which the International Sanitary Board had to contend was the removal of these centres of infection. Every possible pressure had to be brought to bear on the authorities before they could be induced to meddle with these clubs. Newchwang likewise possesses a guild of native merchants, which, besides performing the functions of a Chamber of Commerce, exercises the municipal duties of maintaining the streets, drains and bridges, providing food and extra clothing to the necessitous poor during the long, severe winter, keeping in order the ponds for supplying the town with water, guarding commonalties and supplying theatrical performances and other entertainment to its members and the general public. It has the authority to tax carts, shops and, to a certain extent, trade to enable it to fulfil these duties; but, although the taxes are rigidly levied, it cannot be said that the duties are faithfully carried out.

At Moukden there is another office, which, although dealing more especially with the provinces of Kirin and Hei-lung-chiang,

must not be omitted. It is called the Wu-la Tsung-kuan Yamên, and exercises supervision over the hunters (Ta Shêng) and pearl-fishers (Ts'ai Chu) in Wu-la, the name of the country now included in the two northern provinces. Through this office tribute of furs, animals, etc., has to be sent annually to Peking, and presents of grain and clothing are made by it to the hunters and pearl-fishers.

The military administration of Fêng-t'ien is carried on by the Military Governor (Chiang Chün) of the province, assisted by four Military Deputy-Lieutenant-Governors, stationed at Moukden, Chin-chou T'ing, Hsing-ching (Hsing-king) and Chin-chou Fu; but, owing to the lease of the Kuan-tung[1] Peninsula to Russia, the forces at Chin-chou T'ing have been withdrawn and stationed elsewhere. The army of Manchuria is composed of "foreign drilled" Chinese troops and a Banner force, said to number 25,000 and 40,000 respectively. It is usual to considerably discount Chinese figures; but within the last two or three years active recruiting has been carried on, and I am inclined to think that these figures should be added to and not discounted. Indeed, the quantity of Mauser rifles recently imported into Manchuria through the port of Newchwang alone, for use in the Fêng-t'ien province, would suffice to equip an army of about 40,000 men, and it must be remembered that the foreign drilled troops of the province, amounting to 8,000 men, are already provided with serviceable weapons. There is, besides, an arsenal at Moukden, where rifles of all sorts are manufactured, and quite recently the conversion of muzzle into breach-loading guns has been a specialty of the establishment. If one were to judge by battalions, the cavalry would appear to equal the infantry; but an infantry battalion numbers 500 men, while a squadron of cavalry numbers only some 200. A

[1] The name Kuan-tung is properly applicable to the southern part of the Liao-tung Peninsula.

force of some thirteen battalions is stationed at Moukden, and the balance is distributed throughout the various cities of the province, where, in addition to their military duties, they act as bodyguards to the civil officials from the magistrate upwards, and as military police assist them in maintaining order.

The head of the province of Kirin is a Chiang-chün, or Military Governor, and the administration is practically on a military basis; but where Chinese have settled in numbers it has been found necessary to appoint civil officials. There is a Taotai at Kirin, and Prefects are stationed at Kirin and Ch'ang-ch'un Fu (K'uan-ch'êng-tzŭ), which is eighty miles to the west of the capital. There are independent Sub-Prefects at Pai-tu-na (or Pe-tu-na), Shuang-ch'êng, Pinchou and Wu-ch'ang, a Department Magistrate at Yi-t'ung, and District Magistrates at Nung-an (Lung-wan) and Tun-hua (Ao-tun-ch'êng).

In addition to the Banner force, there is a foreign drilled force, said to number 10,000 men, under the command of six Military Deputy-Lieutenant-Governors, who have charge of certain divisions of the province. They are stationed at Kirin, Ninguta, San-sing (San-hsing), Pe-tu-na, A-shih-ho (Altch'ukha) and Hun-ch'un. The last is a special appointment, and the officer in command is charged with the defence of the frontier of Kirin bordering on the Russian Primorsk. There are forts at Kirin, Hun-ch'un and San-sing, as well as an arsenal and powder mills at Kirin; but the value of the frontier defences may be gathered from the following description by a British military officer of the fort at San-sing, which he visited in 1897: "It is a ruin, but was originally a mud lunette, with just enough cement in it to hold it together for one or two inspections. The timber with which the magazines are lined is decayed and broken, the shot, shell, racers, pivots, etc., are rusty, and heaped up in the open like a pile of old iron. The only evidence that any attempt was ever made to mount a gun

s a broken pivot and a burst hydraulic cylinder. The carriages ıre in a very bad condition, but the guns themselves, though lying n the open, are serviceable."[1] It is hardly surprising that this 'ort fell with ease into the hands of the Russians during :heir present invasion of Manchuria. I should have mentioned :hat the fort between the port of Newchwang and the mouth of :he Liao River in the Fêng-t'ien province was dismantled by :he Japanese in 1895 and the guns carried off or destroyed. [t was not again equipped.

Although Fêng-t'ien has recently been very much disturbed ›y bandits, mounted and on foot, in the south-west of the ›rovince, Kirin is, *par excellence*, the province of outlaws and :x-soldiers, who, well mounted and armed, collect into bands, ınd, issuing from their mountain fastnesses, especially in the :ast and north-east of the province, swoop down on villages, :aravans of goods and travellers and plunder and rob without nercy. Even the great trade highways of the provinces are nfested with them, and an experience which befell the writer in 1896 has already been described in Chapter I. Officials are ›ometimes carried off and held to ransom. There can be little loubt that these brigands have agents in the principal towns who keep them informed regarding the movement of treasure ınd valuables, and I understand that the Russians have recently ıad considerable trouble in forwarding silver to pay the work-nen engaged on the Trans-Manchurian Railway in the neigh-›ourhood of Ninguta, which is a favourite haunt of these ›utlaws. Indeed, brigandage in Manchuria has given rise to :he establishment of private insurance offices throughout the ›ountry. These undertake for a commission the safe conduct of goods and treasure from one place to another. Each office ıupplies the trader with its own distinctive triangular scalloped

[1] *Parliamentary Paper, China*, No. 1 (1889), p. 55.

flag, which is planted on each cart in the caravan, and a few armed men are sent as a nominal guard. It is generally understood that the insurance offices have to pay blackmail to the brigands to insure respect for their flags, as the insurance guards are too weak to resist any determined attack. That they are sometimes attacked, however, is proved by the visits which they pay now and again to missionary hospitals for the purpose of having bullets extracted. The military forces of Kirin are kept busy hunting down these brigands, who, knowing that their capture means sudden death, fight with the greatest determination, and frequently inflict heavy losses on their would-be captors. Brigandage has practically become a profession in the Central province, and even in the Southern province, where it is less rampant, parents have been overheard discussing the advisability of fitting out their sons as highwaymen when everything else failed, and even a ragged mendicant bewailing his luck has been know to express the opinion that it would be far more profitable for him to be a brigand than a beggar, and that he only lacked the funds to procure an outfit. There are times when the Chinese authorities find it convenient to enter into a compact with these outlaws. An instance occurred during the war with Japan, when a brigand chief and his followers were induced to attempt the expulsion of the invaders of Manchuria. They were not a success.

Hei-lung-chiang is also presided over by a Military Governor, and the civil administration is at a discount. There are only two civil officials with territorial jurisdiction in the whole of the province. They are the independent Sub-Prefects of Hu-lan and Sui-hua (Pei-t'uan-lin-tzŭ), two places situated in the Chinese-cultivated area to the immediate north of the Sungari.

There are six Military Deputy-Lieutenant-Governors stationed at Aigun, Mergen, Tsitsihar, Hu-lan, Hu-lun-pei-'rh (Khailar) and Pu-t'ê-ha, commanding, in addition to the Banner

force of the province, a foreign drilled force of 7,000 Chinese. Besides their ordinary military duties they are engaged in the suppression of brigandage, which is rampant in the south of the province, and in the protection of the gold mines on the right bank of the Amur. There is a fort at Aigun on the Amur for the protection of the frontier.

The financial condition of Manchuria is a very intricate subject, and it is altogether impossible to arrive at figures which can be looked upon as reliable. The revenue is derived from the land tax, from which Manchus are exempt, contributions from salt, which is a Government monopoly, likin and native customs duties on goods of all kinds, including native opium and lumber, levies on carts, licenses to opium dealers, distilleries and native boats plying on the inland waters, taxes on sales of cattle, houses and land, percentages on the output of gold, and last, but not least, part of the revenue of the Imperial Maritime Customs at the port of Newchwang, which in 1899 amounted to Haikwan taels 928,740, or £139,795.[1] Annual subsidies are also contributed by several of the provinces of China in aid of frontier defence, and it is the constant wail of the High Authorities of Manchuria that these contributions are in arrear. There can be no doubt that there is a heavy expenditure for military purposes; but a searching investigation into the finances of the three provinces would probably reveal serious losses to the provincial exchequers, and an absolute waste of much that is actually contributed to them.

[1] The average sterling value of the Haikwan tael was 2s. 10½d. in 1898 and 3s. 0½d. in 1899.

CHAPTER VII

AGRICULTURE AND AGRICULTURAL PRODUCTS

PRIOR to the establishment of the present dynasty in China the inhabitants of Manchuria were, as stated in the last chapter, warriors, fishermen and hunters, who devoted but little attention to the cultivation of the soil. They were content to produce enough to supply their own immediate wants, and to graze their flocks and herds on the succulent grasses of the steppes. More especially was this the case in the two northern provinces, for during the Ming dynasty (1368-1643) the greater part of the southern province of Fêng-t'ien was already under Chinese jurisdiction, and, under the name of Liao-chou-wei, constituted a Chinese possession, which was marked off from the Tartar tribes to the north and east by a palisade, whose position to the north of K'ai-yüan and east of Hsing-king and Fêng-huang-ch'êng may still be found traced on modern maps, although it has now all but disappeared. In the seventeenth century, therefore, Southern Manchuria was on the same footing, in regard to cultivation, as China Proper, and since the accession of the Manchu dynasty Chinese colonists have pushed northwards and settled on the fine rich loam, so admirably suited to purposes of tillage, where they have been amply rewarded for their enterprise and labour. Emigration to the far north has been systematically discouraged by the Government, for fear, it is supposed, of trouble with the Colossus of the North, and much of the east of Kirin and Fêng-t'ien was reserved as an Imperial hunting ground; but of late these restrictions

and reservations have been relaxed, with the result that even Hei-lung-chiang is gradually being reclaimed, while the Imperial hunting ground is, by permission of the Throne, fast becoming a busy centre of agricultural life.

Probably not more than one-fifth of the whole arable land of Manchuria is at present under cultivation. Only small patches, comparatively speaking, of Hei-lung-chiang, which exceeds in area the other two provinces combined, are annually under crop; at least one-half of Kirin yet remains untilled; and Fêng-t'ien has three or four-tenths still awaiting development. The present colonists are of themselves unable to cope with the land they have taken up, and labour is yearly imported from the northern provinces of China, especially Shan-tung and Chihli, to till, sow and reap. From Chefoo alone more than twenty thousand Chinese labourers come to Newchwang every spring by steamer and distribute themselves all over Manchuria and Eastern Mongolia; and that number represents but a part of the annual influx, for many cross over in junks from Chefoo to ports in the south of the Liao-tung Peninsula, which are not closed by ice in winter, and make their way overland to the scenes of their labour before the Liao River is open to navigation in the spring. These labourers return by steamer to Chefoo after the crops have been harvested, and as the return passengers by steamer exceed the arrivals by about eight thousand, it may be roughly calculated that Shan-tung annually supplies Manchuria with agricultural labour to the extent of thirty thousand men. That province also sends every year petty traders and others to the number of some five thousand men, who come to Newchwang by steamer just before the closing of the river and stay over winter in Manchuria. The province of Chihli likewise sends a large number of agricultural labourers; but as they enter and leave Manchuria by land there is no means at hand of gauging its extent. It will be seen from the above, there-

fore, that Manchuria is greatly deficient in labour, and that the cultivation now carried on is largely dependent on help from Northern China.

The climatic conditions of Manchuria are such as to confine agricultural operations to seven months of the year. With the exception of the very south of the Liao-tung Peninsula, where a little winter wheat is grown, the farmer does not touch his land till the frost begins to relax its grasp of the soil towards the middle of March, and he must take care that crops of all kinds are harvested before the end of October or early in November, for in the latter month the icy hand of winter again tightens its hold of the ground. As a matter of fact, the surface is still slightly frozen in March, when the land is broken up and drilled by plough for the reception of wheat and barley, which are ripe and harvested in June, thereby admitting of another but different crop being taken from the same soil. But the most important cereal grown in Manchuria is the tall millet (Kao-liang), or *Holcus sorghum, L.* It is the staple food of the population and the principal grain feed of the numerous animals engaged in the farmwork and in the immense carrying trade of the three provinces. When a field has been ploughed into drills in April, and their tops cut open by an iron coulter attached to the forepart of the plough, the seed is sown by hand in the hollows thus made, and covered with manure from baskets carried by a labourer following in the wake of the sower, and a stone roller is then passed over the drills. When the shoots are two or three inches high they are thinned by hoe—a space about a foot and a half being left between the plants—and the drills are carefully weeded and earthed up three times, after which no further labour is necessary until harvest time in September. In May, when the stems are two to three feet high, heavy rains are much dreaded, for if water stands for any length of time between the drills the roots lose their hold of the soil

l rot, and the stems, especially if the rain is accompanied wind, fall over and die. Towards harvest time, again, too ch rain or too long drought is feared, for, in either case, lower part of the grain head fails to ripen and only a tial crop is garnered. In September the stems have attained eight of from eight to ten feet, and the heads have assumed t brown purple tint which is derived from the small dark ple cases containing the grains. Towards the end of the nth the stems are cut down near the root, made into bundles l carted to the farmhouse, where a threshing floor has been pared in the open. The heads are cut off, spread on the r and threshed by means of a stone roller to which an ox, key or mule is harnessed. The separation of the grains n their purple cases is completed in about four hours. The pty heads are then removed, either to be burned as firewood to be made into brooms, and the grain is swept up and sed through a winnowing machine or tossed up in the air, ere the wind catches and removes the dust. The grain is v ready to be packed in sacks for market, but it has still be husked before it can be used for human food. It is given animals in its unhusked state. To remove the husks the in is spread on a circular stone platform, whereon a stone ler fitted thereto crushes the husks as it revolves. The ole is then passed through a winnowing machine, which arates the grain from the husks. To cook the grains for food, y are first washed in cold water and then poured into a pot of ling water, in the proportion of four parts water to one part millet, and boiled for an hour. At the end of that time it l be found that the grains are pulpy and swollen to three four times their original size. The soft mass is then scooped o bowls and eaten with boiled, fresh or pickled vegetables, h the aid of chopsticks, just like rice. No salt or other soning is added to the millet while being boiled, and the

taste is very insipid. An ordinary servant consumes 2 lb. of millet per day, while a hard-working man will, it is alleged, consume double that quantity. It is found that a change of diet is occasionally required, and native flour, which is coarser and goes a much longer way than foreign flour, is from time to time taken as a substitute for millet. A Chinese friend of mine has five servants, and he supplies them monthly with 240 lb. of millet, 16 lb. of native flour—sufficient for two days—and on two days of the month with meat. The dates on which flour and meat are given are fixed, and the intervals between them are as near as possible equal. But the grains are not the only useful part of the tall millet; the stalks play a very important *rôle* in Manchuria. The outer leaf layers are woven into mats, which are so much required in the trade of the country for enclosing ricks and packing loads of grain and beans, and for numerous other purposes. The stalks are also utilised for fencing, bridging and house-building; and where wood and coal are unobtainable or dear they are used for fuel. In spring, too, the roots are ploughed up and collected for fuel. It is estimated that from 4,000 to 5,000 carts laden with bundles of millet stalks come into the port of Newchwang every winter from a radius of ten to twelve miles to supply a population of about 70,000. Eight pounds of seed suffice to sow an acre of land, which will produce in good years 10 to 12 cwt. of grain. In bad years, or on poor soil, only a third of this quantity will be harvested. Two other kinds of millet are grown in Manchuria—*Setaria italica, Kth.* (Hsiao-mi), and *Panicum miliaceum, L.* (Huang-mi). They occupy the ground from the beginning of April—a fortnight earlier than the tall millet—to the middle of September. Like all other cereals, they are cultivated in drills, but the seed is sown much more thickly than in the case of *kao-liang*. The former, or spiked millet, requires 41 to 42 lb. of seed per acre (6·6 *mou*), which in good years will yield 18 to 19 cwt.; the

er, with 40 lb. of seed, yields only 10 to 11 cwt., and is rer than the former, costing 5 tiaos (roughly speaking, 10 s = 1 Chinese ounce of silver) per bushel of 50 lb., against aos per bushel of about 52 lb. The tall millet, on the other d, costs between 3 and 4 tiaos per bushel of some 40 lb. se two millets are harvested, threshed and husked like *-liang*, but the grain heads are not removed from the straw. ooking the grains of spiked millet for food, water is added he proportion of three to one, for their absorptive power is so great as that of tall millet, nor do they require so much ing; a quarter of an hour is sufficient. While half a Chinese t (*shêng*), equal to 2 lb., of the latter suffices for one individual ing two meals a day, the same measure of the former, but al to 2½ lb., will cook three meals. Spiked millet, however, s not take the place of the staple food: it is used as a change liet only. And so with *Panicum miliaceum:* the grains are ınd into flour and made into cakes, in which Chinese dates ujubes (*Zizyphus vulgaris, Lamb.*) are studded, or into a kind onfectionery with brown sugar. The most casual observer not fail to notice little pyramid-shaped leaf packets ad out on the numerous street stalls during the summer ıths. These are the leaves of a reed (*Phragmites communis, n.*) extensively grown on salt, marshy ground, and they are l to wrap up this sweetmeat. Two varieties of the spiked et are grown in Manchuria, with yellow and white grains ectively. I noticed the latter at a hamlet called La-yao-tzŭ le travelling in the province of Kirin, and was told that it is wn principally in the north; but the yellow variety is more monly cultivated. The chopped-up straw of these two ets is universally used for fodder in Manchuria; and the portion which their combined cultivation bears to tall et (Kao-liang) is estimated at 30 per cent. I should have tioned that on large farms spiked millet is sown through

a metal seed tube held in the hand or attached to the end of the plough.

Manchuria is an ideal wheat field, and both barley and wheat are grown in considerable quantities. They are sown in drills in March and harvested in June, wheat ripening ten days earlier than barley. Wheat especially is cultivated on both banks of the Sungari, within the Hei-lung-chiang and Kirin provinces, and is exported in junks to the Russian province of the Primorsk. Manchuria supplies itself with native flour, and the manufacture yields bran for beasts of burden. Barley is husked, ground and made into cakes for the most part. It is also used in large quantities ground up with peas or beans as a ferment in the distillation of native spirit (Shao chiu) from tall millet (Kao-liang). Some 20 lb. of barley are required to sow an acre, which will yield from 14 to 25 cwt., according to the quality and condition of the soil. An acre of wheat, on the other hand, requires 17 to 22 lb. of seed, and yields 10 to 14 cwt. of grain. Wheat costs about three times as much as barley, and can be bought in good seasons from the farmer at about 3 tiaos (50 Mexican dollar cents) per bushel of 41 to 42 lb. The best native flour manufactured from wheat grown in Manchuria costs at the port of Newchwang 25 copper cash a pound, that is to say, 40 lb. can be purchased for a Mexican dollar of the value of about 2s.

It is difficult to disassociate the cultivation of rice from a constant and abundant water supply; but in Manchuria rice is grown on dry land like other cereals, and, unlike them, the crop is not ruined by a superabundance of rain. It is sown in drills in the end of March or beginning of April, and is ripe in September. The yield ranges from 50 to 140 fold, according to the quality of the soil. Unhusked, it costs 6 tiaos (about one Mexican dollar) per Chinese bushel, weighing 50 to 51 lb. Water-grown rice from the south of China costs about the same

rice laid down at the port of Newchwang; but dry-grown rice
s much softer than, and its absorptive capacity is about one
alf of, water-grown rice. As, however, it is twice the price
f tall millet—the staple food of the people—it is not exten-
.vely grown in Manchuria. The cultivation of this dry-grown
ice deserves the attention of countries like India, where a failure
r deficiency of the rainfall means famine or dearth.

Maize, or Indian corn (*Zea mais, L.*), is grown in Manchuria
ı the same way as tall millet. Seventeen pounds of seed are
equired to sow an acre, which will yield 8 to 10 cwt. of grain.
n some parts of the Liao-tung Peninsula it enters largely into
he food of the people, taking, in fact, the place of millet. The
rains are separated from the cob by stone rollers, and coarse
round by millstone—the yellow epidermis being removed—till
ach grain is divided up into three or four pieces. In this form
t is boiled for about a quarter of an hour and eaten like rice.
t is also ground into flour and made into cakes. The market
ırice of a Chinese bushel (about 40 to 41 lb.) of grains is about
60 Mexican dollar cents, or twelve pence. The roots, stalks
nd empty cobs are used for fuel, and one not unfrequently
ıotices empty cobs utilised as corks or stoppers for narrow-
ıecked wine jars. Maize occupies the ground from April to
June only, and, like barley and wheat, admits of an autumn
rop being taken from the same soil.

Buckwheat (*Polygonum fagopyrum, L.*) is an autumn crop
vhich requires only two and a half months to ripen, being sown
n July and harvested in September. The seed is sown in drills,
ınd the plants are picked out about six inches apart. The
ıverage yield per acre is about 9 cwt.; but in the very cold
ıorth of Manchuria and Eastern Mongolia, where it is chiefly
ultivated, as much as 14 cwt. are said to be harvested. A
ıushel of about 40 lb. weight costs a little over half a Mexican
ollar, or a third of a Chinese ounce of silver. It is ground into

flour, which is made into a kind of macaroni, baked into
or boiled to the consistency of gruel. It is very often
after the opium poppy, of which I shall speak hereafter, a
case of a failure of the millet crop, due to excessive r
or drought, it usually takes its place, so that one harvest
be secured from the soil.

The above are the eight cereals grown in Manchuria
where farming is carried on on a small scale, tall millet is
for two or three years on the same soil. After several
however, it is found that the grain decreases in quality
a change of crop becomes necessary. On large farm
the other hand, a certain rotation, such as the followi
adopted:—

1st year	Millet.
2nd year	Beans.
3rd year	Rice, barley or wheat
4th year	Millet.

There is another corn plant cultivated in Manchuria, n
Coix lachryma, L., which derives its name of Job's Tears
the tear-like shape of its seed capsules. These are about
the size of a pea, hard, glossy and of a mottled white and
slate colour. Strung together, they are in much dema
bracelets, necklaces and rosaries. It is cultivated like I
corn, and each capsule contains one seed or kernel covere
a thin yellow or reddish integument. The removal c
integument reveals a white grain (I-mi) with a groove
one side extending to the centre, which imparts to it
semblance to barley. In fact, it appears in the export l
the Imperial Maritime Customs as "Pearl Barley"! The
are hard and brittle like rice. In the Chinese pharmac
diuretic and cathartic properties are attributed to them
although they are employed in making sweetmeats, their

ıse is medicinal. As "Pearl Barley," Job's Tears are quoted n the Customs Returns at about two and a half Haikwan aels a picul of 133⅓ lb., whereas the market value is about hree times that amount.

Next in importance to tall millet (Kao-liang) as an article of cultivation, and of still greater importance as an article of external trade, is pulse. A large variety of beans is grown in Manchuria, and, together with their resultants, bean-cake and bean-oil, they constitute by far the most valuable item in the export trade of the three provinces. In the month of April hey are sown by hand in drills, and the crop is ripe in September; but as regards the beans of commerce there is an exception, namely, the small, green bean known as Lü-tou (*Phaseolus Mungo, L.*), which ripens as early as July, and which an be sown again in that month and gathered early in October. shall have much to say hereafter in regard to this insignificant ooking bean, which is the subject of a considerable industry hroughout Manchuria and Northern China. The Chinese listinguish the beans of commerce by their colours, and they re known as Yellow (Huang Tou), Green (Ch'ing Tou), Black Hei, or Wu Tou), White (Pai Tou), Red (Hung Tou) and mall Green (Lü Tou). The yellow, green and black are arieties of the soy bean (*Glycine hispida, Mœnch.*, or *Dolichos oja, L.*), and the yield per acre, which requires from 16 to 18 b. of seed, is estimated at from 27 to 39 bushels, with a weight f about 40 lb. per bushel. Each pod contains usually two ut sometimes three beans, and four are rare. Each variety of he soy bean has a number of sub-species. The yellow has hree, known respectively as (*a*) Pai-mei (white eyebrow), from he white scar on the saddle or point of attachment to the pod; b) Chin-huang, or Chin-yüan (golden yellow or golden round), om the golden colour and more rounded shape of the bean; nd (*c*) Hei-chi (black belly), from the dark brown scar on the

saddle. All the three sub-species are highly prized for the quantity of oil or fat which they contain, but sub-species (*a*) and (*b*) are noted for the quality of the bean-curd (Tou-fu) or legumine obtained from them, as well as for the sprouts which are procured by soaking the beans in water, and which are greatly relished as a vegetable.

There are two sub-species of the green bean (Ch'ing-Tou):—

(*a*) When the epidermis is green and the inside yellow. This sub-species is said to yield more legumine in the manufacture of bean-curd than sub-species (*a*) and (*b*) of the yellow bean, but the quality is inferior. It is also boiled and used as food.

(*b*) When both epidermis and inside are green. These two sub-species yield oil or fat, but not, it is alleged, so abundantly as the yellow bean (Huang Tou).

The black bean (Wu Tou) has three sub-species:—

(*a*) Ta-wu-tou (large black bean), where the epidermis is black and the inside green. It yields oil or fat, and it is likewise boiled with millet or rice and used for food.

(*b*) Hsiao-wu-tou (small black bean), where the bean is somewhat smaller than the sub-species (*a*), with a black epidermis and yellow inside. It is largely used for horse feed and also yields oil, the refuse being employed for feeding pigs. It is likewise pickled for food.

(*c*) Pien-wu-tou (flat black bean), where the epidermis is black and the inside yellow. It is flattened and elliptical in shape, and is mostly used for pickling and for horse feed.

These three varieties of the soy bean are distinguished by their ovoid shape, and differ from the ray-fruited dwarf bean (*Phaseolus radiatus, L.*), which is much smaller, glossy and ellipsoidal with blunted ends, and which includes the white and red beans mentioned above, as well as several other sub-species classed according to their colour, as variegated (Hua), black

(Wu), light red (Chih), etc. All the sub-species are white inside and very brittle, showing that they contain very little oil or fat. They are used solely for food.

The Tou-fu, or bean-curd, above referred to, is a product of universal consumption in China. The beans—yellow or green—are steeped overnight in cold or, if time is an object, in warm water. In the morning they are taken out much swollen and ground in a stone mill, water being poured in at the hole in the top of the mill-stone every few seconds to hasten the process The whole is then collected and passed through a sieve or piece of cloth, which retains the epidermis of the beans. The filtrate is thereafter poured into a pot and brought to the boil. It is then poured into an earthenware *kang*, or jar, and half a bowl of brine (Lu shui), from sea-salt, well diluted, is added to and stirred in it to cause coagulation of the legumine. This occurs in about an hour, when it is transferred to a wooden frame some three inches deep, with wooden sides and bottom, whereon a cloth has been previously spread. The water escapes through the cloth and by a drainage opening at the end of the frame, the cloth is folded over the legumine, and a lid of bamboos or reeds is placed on the top and weighted with stones to press out the moisture and shape the curd to the size of the frame. This is soon completed; the stones and lid are removed; and the cloth folded back exposes a whitish grey mass of the consistency of cream cheese. It is now ready to be cut up by knife, and is sold at from 8 to 9 copper cash (960 to 1,000 copper cash = 1 Mexican dollar = about 2s.) a catty of 1⅓ lb. Three shêng (1 shêng = 3 catties = 4 lb.) of beans will yield 50 catties, or 66⅔ lb. of bean-curd. Besides the actual curd various analogous substances are produced, such, for example, as Tou-fu-kan-tzŭ (dry bean-curd cakes), where the curd is cut up and undergoes additional pressure; Tou-fu-nao (bean-curd brain), a substance of less consistency than the curd itself, obtained by

putting powdered gypsum instead of brine in the filtrate after it has been brought to the boil; Tou-fu-p'i (bean-curd skin), the scum of the boiling filtrate, which is taken off and hung up to dry; Ch'ien-chang-tou-fu (bean-curd wafers or sheets), made by placing thin layers of the legumine in cloth and subjecting them to considerable pressure, and Tung-tou-fu (frozen bean-curd), where the bean-curd is cut up, frozen and then exposed to the rays of the sun, whereby the greater part of the moisture is removed during the process of thawing.

I pass now to the Lü Tou (green bean)—*Phaseolus mungo, L.*—the smallest but one of the most important of the beans of commerce cultivated in Manchuria. The epidermis is of a dark green colour, while the inside is whitish yellow, shading to green. It is somewhat blunted at the ends and has a white scar on the saddle. In bulk it is about one-fifth of the size of a yellow bean (Hei chi), and twenty of the latter taken at random weigh as much as a hundred and five of the former. It is much harder than the soy bean; in other words, it contains little oil or fat. This bean, when soaked in water, produces excellent sprouts, but it is mainly and universally used for the manufacture of vermicelli. The process of manufacture is so novel and unique as to deserve minute description, and it is just possible that it may lead to similar, if not so primitive, industries in Western lands. The beans are first steeped for a night in jars of cold water. Next morning they will be found to have absorbed so much moisture as to be twice their original size. They are then ground up between two millstones, and the liquid mixture passed through fine sieves to separate the flour from the crushed skins, which are discarded. The filtrate is poured into jars of water, the flour sinks to the bottom, and all floating impurities are removed. The water is poured off, and the flour packed in fine hempen bags, which are hung up in the sun to dry. When this has been

accomplished the bags are removed and the contents remain hard masses of white flour, which it requires considerable pressure of the hands to break up. When the vermicelli is about to be manufactured a little of the bean flour is placed in a wooden vessel shaped like a calabash and mixed thoroughly with cold water. A small quantity of this mixture is then transferred to a similar vessel, and boiling water is poured thereon until it is more than half full. A man armed with a rolling-pin then beats up the contents with great rapidity until they become of a thick, starchy consistency, when the sticky mass is dropped into a large earthenware jar, where another workman at once begins to knead and supply it with as much of the dry flour as it will absorb. This process is repeated until the jar is nearly full. Half a dozen men then stand round the jar and knead, beat and struggle with the whole mass, continually supplying it with dry flour, until an enormous quantity has been absorbed and the dough no longer sticks to the hands and arms of the workmen. This seems to be the test of fitness for further manipulation. A wooden calabash-shaped vessel, perforated in the bottom with forty-eight small round holes and having an iron ring fixed on the edge opposite the handle, is then selected and filled with a piece of the dough several pounds in weight. The vessel is then hooked to a rope attached to a cross beam of the roof above a cauldron of boiling water, and a man holding the handle of the vessel in his left beats with his right hand the dough, which escapes in strings through the holes in the bottom and falls into the boiling water, whence it is immediately drawn into a tub of cold water by another individual armed with a thin, short bamboo. When sufficient lengths of strings have been obtained the latter severs them with his teeth. The vessel is constantly being refilled with dough, and the men relieve each other at the laborious beating process. When the strings are taken

from the tub of cold water they are hung over a bamboo framework to dry, and are afterwards made up into hanks and bundles for market. This vermicelli has a beautiful whitish watery colour resembling to a great extent isinglass, from which, however, it differs in that it is impossible to melt it by boiling. It enters largely into the native diet throughout the whole of China, and will be found in every land in which Chinese have settled. To the foreign palate it is somewhat insipid and tasteless, but it should not be difficult to add to a similarly manufactured article any desired flavouring.

Besides these beans of commerce there are several varieties of garden beans cultivated for food, such as the Yün Tou, of which there are two sub-species, white and red; the Chiang Tou, with several sub-species, pea-yellow and mixed, dull red and yellow predominating; the Mao Tou, or hairy bean, with short hairy pods, each containing one to three beans (epidermis white and inside green); and the Pien Tou, so called from its short but broad flat pod, which also contains one to three beans. The last named is the *Dolichos lablab, L.* With the exception of the Mao Tou these are usually cooked and eaten with the pods. The common pea—*Pisum sativum, L.*—is also grown in Manchuria, especially in the Liao-tung Peninsula. As stated above, it is ground up with barley and used as a ferment in the manufacture of spirit (Shao Chiu).

In 1893 I had occasion to contribute to the Foreign Office a report on the island of Formosa (*China, Commercial*, No. XI, of 1893), wherein, dealing with the textile plants grown there, I said: "Three of the most valuable textile plants cultivated in China are not grown in Formosa. They are *Gossypium herbaceum, L.*, or the cotton plant, *Cannabis sativa, L.*, or the true hemp plant, and *Abutilon avicennæ, Gærtn.*, a plant which yields Abutilon hemp." These are the only three plants cultivated in Manchuria for their fibres. Cotton, however, is not grown to

any considerable extent except in the southern province, and even there it is not of much account as a crop; but true hemp and Abutilon hemp are widely cultivated in all the three provinces, and especially in the north, where the plants of the latter attain a great height, and yield, by retting, fibre ribbons as long as fifteen feet. The average length, however, is from seven to ten feet. The fibre of true hemp, which is less cultivated than Abutilon hemp, is shorter but more expensive, costing £20 to £25 a ton, against £11 to £13 for the latter. The fibre of Abutilon hemp is much whiter than that of true hemp, but its tenacity is not nearly so great. The seed of both these hemps is sown in April in drills—intervals of four to five inches being left between the plants—and the crops are harvested in August. Sacking and coarse cloth are manufactured from true hemp, and both fibres are extensively used for making rope and cordage, large quantities of which as well as of sacking are required for the enormous cart traffic of the interior. The large leaves of the Abutilon plant are greatly used for the adulteration of tobacco. I have already mentioned that mats of various kinds are made from the outer sheathing of the millet (*Holcus sorghum, L.*) stalks, but still more important are the stems of the reed called *Phragmites communis, Trin.*, which grows wild in many parts of Southern Manchuria. They are cut up into different finenesses, according to the quality of the mats to be manufactured. They are also woven whole into very large mats for covering the rafters of houses before the tiles are put on. The great centre for the manufacture of these reed mats is the district of Kai-p'ing, to the south and east of the port of Newchwang.

The plants grown in Manchuria whose seeds yield oil are six in number. They are (1) *Dolichos soja, L.*, or soy bean above referred to; (2) *Ricinus communis, L.*, or castor-oil plant; (3) *Sesamum orientale, L.*; (4) *Perilla ocymoides, L.*; (5) *Gossypium herbaceum, L.*, or the cotton plant, and (6) *Cannabis sativa, L.*,

or the true hemp plant. The names and uses of the oils are the following: (1) *Tou yu*—cooking, mixing paints and lighting; (2) *Ta ma* (or *Pi ma*) *yu*—lubricating and candle making; (3) *Hsiang yu*—cooking; (4) *Su yu*—boiled and used in place of linseed oil; (5) *Hua tzŭ* (or *Hei*) *yu*—lighting, softening leather and harness, and as hair oil; and (6) *Ma tzŭ yu*—mixing paints. All these seeds, with the exception of *sesamum* seeds, which are roasted, are crushed, steamed and subjected to great pressure, and the following table gives approximately the percentage and value of the oil extracted :—

Oil-yielding Seeds.	Quantity.	Value.	Oil.		Refuse Cakes.	
	Catties.	Taels.	Catties.	Taels per 100 Catties.	Catties.	Taels per 100 Catties.
Beans . . .	100	1·67	9	6·70	97·5	1·10
Perilla Seed . .	25-26	0·40	9	6·50	20	0·65
Hemp Seed . .	30	0·29	6·5	5·60	24	0·5
Castor Seed . .	25	0·32	12	5·80	15	0·8
Sesamum Seed .	29	1·30	13	10·00	15	0·65
Cotton Seed . .	100	0·64	10	4·00 3·40	?	1·20 0·60

The ground nut (*Arachis hypogœa*, *L.*) is cultivated in Manchuria for food, not, however, to any great extent, and oil is not extracted from the nuts as in the south of China.

So far as I can gather, the only dye-plant grown in Manchuria is the Dyer's Knot weed (*Polygonum tinctorium*, *L.*). True indigo from *Indigofera tinctoria*, *L.*, is not a product of these provinces; but the *polygonum* yields a similar blue dye, which is universally employed in the many large dyeing establishments of Manchuria, where it is called Lan-tien. The seeds are sown in April, in drills about nine inches to a foot apart, and in the latter half of September, and, before blossoming, the plants are cut down near the roots, steeped tips downwards in lime-lined vats containing water and weighted with stones. The steeping lasts thirty-six hours. The plants are then

removed, and the water in which they were steeped—now green in colour—is poured into large earthenware jars, standing on a concrete floor, having a conduit leading to a large tank sunk in the ground. Into another similar jar, also containing green water from the vat, a piece of lime is placed, and a part of the stirred-up mixture, weighing about three pounds and of the consistency of cream, all undissolved lime and impurities being avoided, is poured into each of the other jars. A man then proceeds to beat the contents of each jar with a square piece of wood, in the centre of which a long wooden handle is fixed. Gradually the green water assumes a dark blue colour, and it is calculated that when five hundred blows have been struck the *grain* has been completely separated. The jar is then emptied into the conduit, by which the contents find their way to the tank. Here the blue granules sink to the bottom, and, when the surface water is removed, the sediment is collected and made up into cakes for market as dry indigo, or poured into waterproof papered baskets and sold under the name of liquid indigo.

The opium poppy (*Papaver somniferum, L.*) is cultivated throughout the whole of Manchuria; but the great centre of production and export lies to the north of the Sungari, in the south of the province of Hei-lung-chiang, and the chief market for the drug is the city of K'uan-ch'êng-tzŭ or Ch'ang-ch'un Fu in the province of Kirin. The reason given for the more extensive cultivation in the north is that the expense of carrying cereals and pulse to a market in the south is too great, whereas opium, being less bulky and more valuable, admits of easy transport, and can be at once exchanged for ready money. There is a great demand for this opium in Northern China, and agents visit Manchuria annually and carry back the drug overland in small fast carts during the winter months, avoiding the main roads and the tax stations established along them. It is also

extensively smuggled, being readily concealed among the produce brought down in large carts. The poppy occupies the ground from March to July, when the capsules are ripe for bleeding. Curiously enough, the scarifying is done horizontally, not vertically, as in Western and Central China, and, it is alleged, very imperfectly, the sap being collected as soon as it exudes and not allowed to stand over till next morning, as is the custom throughout India and in the great producing centres of Western China. It is impossible to arrive at even an approximate estimate of the quantity produced in, and exported from, Manchuria, for none, or at least very little of it, passes through the Foreign Customs; but one thing is certain, sufficient is grown to supply all local wants and to admit of a considerable export overland and by junk. Moreover, taxation being light, it is about half the price of Indian opium, the import of which is yearly declining, none having been admitted during the Japanese occupation of the port of Newchwang in 1895, and only 32·13 piculs (including one picul of Persian), or 4,284 lb., arriving in 1896. It is stated in favour of the native article that the ashes can be re-smoked much oftener than those of the Indian opium. Many of the labourers returning to Chefoo before the closing of the port in winter invest their savings in native opium and smuggle it across to Shantung. Seizures are frequently made on board steamer by the Custom House authorities at Newchwang, and in 1896 the risk of losing their earnings was so great that one group of men banded themselves together and reported and paid duty on 20 lb. of the drug of the value of $68·46.

The variety of the tobacco plant grown in Manchuria is *Nicotiana rustica, L.*, introduced from Manila through Japan and Corea. It is widely cultivated in all the three provinces; but the product of Kirin is said to possess the best flavour, and it realises the highest price. The seed is sown in May, and the

harvest takes place in October. In the far north the crop runs a great risk of being destroyed by early frosts. The plants are cut down near the root and hung up to dry in the sun, after which the leaves are slowly pressed and assorted. In Kirin the price ranges from $9 to $12 per picul (133⅓ lb.) for whole leaves and from $7·50 to $10 per picul for rolled broken leaves, while the product of the southern province ranges from $6 to $9 for whole, and $5 to $7·50 for broken, leaves respectively. In matter of bulk tobacco ranks next to beans and hemp in the trade of the interior, and it is carried overland and by junk to the northern provinces of China in very large quantities. The product of Manchuria is not appreciated in the south of China, and little is exported by steamer. As stated above, it is adulterated with the fine big leaves of the Abutilon hemp plant.

The most important and most valuable of all the medicinal plants grown in Manchuria is ginseng (*Panax ginseng, C. A. Meyer*). Whether the root actually possesses any therapeutic properties is a disputed point; but the Chinese have implicit confidence in its virtues, and so long as that exists the demand for it will continue. As in Corea, it is indigenous to the country, and it is found in a wild state in the forests of Kirin, especially in the Ch'ang-pai Shan range, where ginseng seekers annually scour the mountains in search of it. When a wild plant is found its age is carefully noted by observing the quantity of its foliage. I am told that a plant of one year's growth has only one three-fingered leaf on a short stem; in the second year two similar leaves; in the third year the leaves are four-fingered, and so on until in the fifth year it has a longish stalk with several petioles each with five-fingered leaves. After this it blossoms and fruits, throwing up a continuation of its stalk, crowned with an umbel, from the junction of the petioles. In the seventh year the root is sufficiently matured to be dug

up and prepared for market. In Japan, on the other hand, it matures much more rapidly, being ripe in the third or fourth year. If, then, the plant, which has been discovered in a wild state, has already reached, or is approaching, maturity, it is either dug up or its position carefully marked until it has fully matured. If, however, it is still young, it is usually dug up and transplanted near the spot where it has been found (the transplanting causing it to grow more rapidly), or in a place where it will be under the eye and care of the cultivator. This transplanting distinguishes the first from the second quality of the drug. The root which matures in an entirely wild state is the more valuable. But nearly all the ginseng exported from Manchuria is grown from seed which is sown in narrow beds in the valleys among the mountains, and this constitutes the third quality. In growing from seed the plants are invariably transplanted when they are a year old. After the matured roots are dug up they are thoroughly washed in cold water, and every particle of earth removed by a soft brush, great care being taken that the epidermis is not bruised or injured. They are then of a yellowish white colour; but in their natural fresh state they would soon rot, so that steps have to be taken to preserve them. An ordinary rice bowl is filled half full of clean sugar (white or brown, according to the colour to be imparted to the roots), and boiling water is poured thereon. When cool the mixture is of a treacly consistency, and it is then used for coating the roots, being applied by means of a soft brush. When coated the roots are laid on a piece of clean cloth, spread on the top of a grating over a pot of boiling water, a wooden lid or cap being placed over all. The steam ascending through the cloth softens the roots, which absorb part of the sugar, the remainder finding its way through the cloth into the boiling water, where it ultimately sinks to the bottom of the pot and recrystallises. This sugar, not unlike toffee, has acquired a

slight flavour of ginseng, and is sold as "ginseng sugar" at about a dollar a catty. During the steaming of the ginseng roots the coating of sugar is frequently applied, until they are sufficiently sweetened. They are then removed from the steamer and spread on trays to dry in a not too powerful sun. When dry this ginseng, now less than one-third of its original weight, is very much softer than Corean ginseng, which is nearly as hard as stone and very brittle. In Japan, ginseng, although also sun-dried, is usually baked for two or three days in kilns heated to a temperature of 210° to 250° Fahr., and probably some similar system is adopted in Corea. At any rate, I am assured that considerable quantities of Manchurian ginseng are taken to Corea for treatment, and it is not unlikely that much of the so-called Corean ginseng exported from Manchuria is really native-grown ginseng preserved in Corea. True, in former years, when Corea paid annual tribute to China, Corean ginseng was brought into Manchuria in large quantities, for the members of the Mission, whose route to Peking lay through Southern Manchuria, were permitted to carry, free of duty, certain fixed amounts, each according to his rank. It is laid down in No. VIII. of the rules agreed upon between China and Corea for the traffic on the frontier between Liao-tung and Corea, of March, 1883, that "if the Envoys do not carry merchandise with them, each officer will be allowed, free of duty, any quantity of clothing, private effects, books and medicines, not exceeding three hundred catties in weight. The junior Legation officers and the suite who may be desirous of participating in the advantages arising from the carriage of goods will be allowed a quantity of red ginseng, limited in the case of Legation officers to twenty catties each, and in the case of attendants or followers to ten catties each." Nor is there reason to suppose that these defined weights were strictly adhered to.

A careful examination of the head of a ginseng root reveals

a series of fine parallel horizontal wrinkles or indentations, which, if natural, stamp the root in the eyes of a ginseng connoisseur as valuable on account of its age; but the Chinese in Manchuria are clever enough to produce artificial indentations if they do not naturally exist or are insufficient in number. During the steaming process a thread is wound round the head. The steaming causes the root to swell, with the exception of the parts bound by the thread, and when the root contracts in drying the artificial wrinkles remain.

There is, again, a recognised taste in the matter of ginseng. The southern provinces of China, such as Kwangtung, Kwangsi and Fuhkien, take white only, whereas the central provinces, such as Kiangsu, Anhui, Hunan and Hupeh, prefer the red, and to satisfy the latter taste, brown instead of white sugar is used for coating the roots while they are being steamed, thereby imparting a pale reddish tint to the epidermis. Much of the Corean ginseng is pronouncedly red; but whether this colouring is artificial, or due, as some think, to the ferruginous soil in which it is grown, I am not in a position to say. It is impossible to state even approximately the value of ginseng, for the real wild root has been known to realise a thousand times its own weight in silver, while ordinary cultivated ginseng may be purchased in the market for about two taels (say, seven shillings) a catty of one and a third pounds. The clarified ginseng exported to China from the United States is made from the root of *Panax quinquefolium, L.*, a species of ginseng which grows in the Appalachian Mountains, and I cannot do better than conclude these remarks on ginseng with a little anecdote appropriate to the subject. A Chinese merchant was present at one of the United States Exhibitions, and was there introduced to an American gentleman, who asked him to take a glass of wine with him. In the course of conversation the merchant asked the American the nature of his business, and the latter

replied that he was a large manufacturer of clarified ginseng. "Ah!" said the Chinese, "ginseng is a very valuable medicine in my country. Pray, sir, can you tell me what its specific medicinal properties are?" "Well," said the American, "perhaps as a manufacturer I ought not to say so, but, in my opinion, ginseng has no more medicinal virtues than an ordinary carrot!"

The following plants, whose roots are also used in medicine, are grown in Manchuria: *Platycordon grandiflorum, D.C.; Pæonia albiflora, Pall.; Peucedaneum terebinthaceum, Fisch.; Asarum sieboldi, Miq.; Glycyrrhiza glabra, L., et palladiflora, Maxim.* (Liquorice); *Gentiana scabra, Bunge; Arisæma sp.; Astilibe chinensis, Franch. et Sav.; Astralagus hoantchy, Franch.; Ptarmica sibirica, Lebed.; Atractylis ovata, Thunb.; Aconitum kusnezofii, Rich.; Angelica inæqualis, Max.; Lithosperum erythrorhizon, Sieb. et Zucc.; Polygonatum officinale, All.* The bark of *Phellodendron amurense, Rupr.*, and *Dictamnus albus, L.*, and the leaves of *Ephedra vulgaris, Rich.*, and *Clematis heracleæfolia, D.C.*, are grown and exported for medicinal purposes, as also the seeds and fruits of *Plantago major, L.; Coix lachryma, L.; Cratægus pinnatifida, Bunge; Pinus coraiensis, Sieb. et Zucc.; Arctium lappa, L.; Cuscata chinensis, Lam.; Schizandra chinensis, Baill.; Prunus japonica, Thunb.* (kernels), and the leaves or grass of *Equisetum hiemale, L.* Curiously enough, the castor-oil plant—*Ricinus communis, L.*—which, as stated above, is cultivated for its oil, is not looked upon as medicinal.

I propose to conclude this chapter with an enumeration of the vegetables and fruits of Manchuria. The former include several varieties of the potato (*Solanum tuberosum, L.*) of excellent quality, two varieties of the turnip (round red and long green), two varieties of the radish (red and white), the carrot, garlic, onion, leek, celery, brinjal or egg-plant

(*Solanum melongena, L.*), taro and, most important of all, Shantung cabbage (Pai ts'ai—*Brassica campestris, L.*). The last named enters largely into the diet of the people, and is universally cultivated, not merely in gardens, but in fields. It does not, however, attain the size, nor does it possess the quality, of the cabbage grown from the same seed in the Shantung province, more especially in the Lai-chou prefecture, and the following story, perhaps slightly exaggerated, will give an idea of the proportions which it there develops. A gentleman in Chefoo received a letter from a friend in Lai-chou announcing that he was sending him a present of a cabbage. The recipient was somewhat annoyed at what he considered the insignificance of the gift, tossed the letter aside, and thought nothing more of the matter until a day or two afterwards when his servant reported to him that a cabbage had arrived, and that the carter evidently expected a *pourboire*. "Carter!" said the gentleman, "what do you mean? Has the cabbage come by cart?" "Yes, sir," replied the servant, "the cart is now at the gate." Determined to get to the bottom of the matter, he went to the gate, and there lay a huge cabbage about 400 lb. in weight, occupying the whole of the cart! "That cabbage," said the gentleman, "lasted me a whole winter." White hearts, each weighing 20 lb. and upwards, from Shantung are frequently to be seen in the market at Newchwang. They likewise include many forms and varieties of the *Cucurbitaceæ* melon, pumpkin, squash, vegetable marrow, cucumber and gourd—of which the following are the native names: Hsiang Kua, Wo Kua, Tung Kua (*Benincasa cerifera, Savi*), Ssŭ Kua (*Luffa petola, Ser.*), Huang Kua (*Cucumis sativus, L.*), Hsi Kua, Yü Kua, Lai Kua, Sao Kua, Sai Kua, Hu tzŭ and Hu lu (gourd—*Langenaria vulgaris, Ser.*). The last named is cultivated for its hard shells only, which, cut in two, make excellent water balers, just as another variety called T'a Kua is grown for its seeds, which are

used for food and exported in considerable quantities under the name of "melon seeds". It is generally, although erroneously, supposed that these seeds are derived from all varieties of melons. They are, however, the produce of the Ta Kua, which is cultivated like other crops; but it is so exhausting to the soil that six years are allowed to elapse before it is grown on the same ground. Another important vegetable in Manchuria is Chieh (kai) t'sai. It develops a bulb inferior in size to a turnip, and has numerous long, broad, finely scalloped leaves. Both bulb and leaves are salted in jars and eaten as a pickle. This is the vegetable which is exported from Ssŭ-ch'uan in such large quantities under the name of "salted turnips". Sweet basil (Hsiang ts'ai—*Ocimum basilicum, L.*) is also cultivated, and the following wild plants are also eaten: Shu-mu-ts'ai, K'u ts'ai (*Lactuca brevirostris, Champ.*), Hsien ts'ai, P'u sun (rush shoots) and the bulbs of Pai Ho, a species of lilium. The seeds of the sunflower are also roasted and eaten. Three kinds of edible fungus—Huang mu, Pai mu and Mu êrh—grow on dead wood, principally in the east of Kirin province. Foreign vegetables, such as the tomato, lettuce, cabbage, Jerusalem artichoke, celery, etc., grow well in Manchuria.

There are several varieties of *Vitis*, notably *Vitis vinifera, L.*, *Vitis Labrusca, L.*, *Vitis heterophylla, Thunb.*, and *Vitis serianæfolia, Maxim.*, and excellent grapes, round and long green and purple, are produced. The common pear of Manchuria is hard and insipid; but there is one kind, called Hsiang-shui-li, grown in the Liao-yang district, which is famed for its sweetness. It is, however, so soft that it does not readily bear transit in a fresh state. It is preserved and packed in boxes like figs. The usual varieties are *Pyrus baccata, L.*, *Pyrus sinensis, Lindl.*, and *Pyrus spectabilis, Ait.* Apples are poor, with the exception of the Siberian crab apple and a small red variety called Hung-tzŭ, grown in the Kai-p'ing district to the south of the port of

Newchwang. Chestnuts, walnuts, peaches, plums and apricots all grow well, and the kernels of the last named are exported under the name of "bitter almonds". A kind of cherry is said to be cultivated in the Liao-yang district; but it is more probably the fruit of *Prunus tomentosa, Thunb.* Cob-nuts, flat-topped from *Corylus heterophylla, Fish.*, and pointed from *Corylus rostrata, Ait.*, grow wild in the hills; but they are of very poor quality. Jujubes—known as "red dates" (Hung tsao)—are the fruit of *Zizyphus vulgaris, Lam.*, and are largely used in making sweetmeats. The fruit of the hawthorn (Shan cha—*Crataegus pinnatifida, Bunge*) grows to a large size, and is highly appreciated as a condiment. Strawberries, barberries, gooseberries and currants are found wild, but they are not cultivated except in the gardens of foreign residents.

CHAPTER VIII

ANIMAL AND MINERAL PRODUCTS

HE most valuable of all the animal products of Manchuria is silk—raw, wild silk—the produce of Antheræa Pernyi, rwise known as Bombyx Pernyi and Bombyx Fantoni, which s and spins on the oak called *Quercus mongolica*. The silk on, however, is confined to the province of Fêng-t'ien, and nds from the sea on the south to a little to the south and of Moukden, its western and eastern boundaries being the) and Ya-lu rivers respectively. In other words, the silk rict of Manchuria is limited to that portion of the province 'êng-t'ien in which the hill slopes face the south. A few tered families feed the worm on mulberry leaves and obtain ttle silk for private use, and others, again, reel silk from cocoons of worms which feed on the leaves of *Ailanthus dulosa, Desf.*; but the latter contain only an insignificant ntity of silk, and neither mulberry nor ailanthus-fed silk be considered a factor in the silk production and trade of churia.

Antheræa Pernyi is bivoltini, and the imago of the autumn on, which is completed in the end of September or early in ober, does not, owing to the cold experienced during the ter months in Manchuria, emerge from the pupa state until beginning of May. In that month the females lay their , sometimes on sheets of paper, but usually on cloth prepared heir reception. The eggs are then exposed to the air and worms hatched in about six days. Immediately after hatching

they are placed on leaves gathered from the oak bushes springing from the roots of the oak trees, which are purposely felled at the end of five or six years, so that tenderer leaves may be obtained from the young shoots. On these leaves they feed until the first moult or "sleep," when they are transferred to the bushes themselves. They attain maturity in from fifty to sixty days from the time of hatching, and then proceed to spin their cocoons—a process which occupies about five days. When the cocoons are completed they are collected from the trees, and the leaves and silk threads joining them thereto are removed, leaving the cocoons and the envelopes of silk which surround them.

To reel the silk from the cocoons about ten and a half pints of water are poured into an ordinary Chinese iron cooking pot or open pan and brought to the boil. To this are added eight ounces of crude soda, itself a Manchurian product, and thoroughly dissolved, and when the solution is off the boil a thousand cocoons are dipped and tossed about in it for some five minutes, so that they may be impregnated with it without being filled. They are then placed in a basket, and the solution which has not been absorbed is poured over them. Meantime another pot of water with a wooden grating just touching the surface of the water has been brought to the boil, and the basket containing the cocoons is placed on the grating. The whole is then covered with a wooden cap fitting into strands of plaited Abutilon hemp, to prevent the escape of the steam. Here the cocoons remain from one and a half to three hours. The fire is then drawn, and after the lapse of fifteen hours the cap is taken off and the basket of cocoons removed. A workman now takes each cocoon separately and removes by hand the outer envelope of silk, leaving only the reelable cocoon. When fifty have been thus treated they are placed on a table, and a workman at once proceeds to reel them, taking the filaments

ten or twelve cocoons, as the case may be, to form
. Reeling from cocoons in hot water is now out of
n Manchuria. The wheel on which the silk is reeled
ded, and so formed that the centre bar can be pushed
s to facilitate the removal of the reeled silk, and as
ghty cocoons are required to make a skein. Three
› to a hank, so that a thousand cocoons make four
ut the weight of skeins and hanks varies considerably.
lament becomes finer and thinner as it nears the centre
ocoon, it is necessary, in order to obtain a uniform
› add a cocoon or two during the reeling. A peculiarity
ld silk is that the filament, or rather the double filament
two spinning ducts unite and form one tube under the
f the worm—is flattened, not round, as in the case of
Mori, with the result that when the silk is thrown, *i.e.*,
› form thread, it is not so even as the thread from the
But in the manufacture of pongees, for which this silk
used, the silk is not thrown. Each skein or hank is
rough tepid and cold water to remove the soda, and
s half dried it is again dipped in bean-flour water, to
ittle melted glue has been added, so that the filaments
ing the thread may be united for weaving purposes.
cilitate mere reeling the treatment of the cocoons
described is perfect; but the process is very injurious
lk itself. In the first place, the alkali solution used
re the gum in the cocoons is far too strong, and, in
d place, the pans should not be made of iron, for the
mbines with the iron and discolours the silk, thus
; it unsuited for dyeing any but the darker colours.
reason only copper pans are used in the Shantung
and hence it is that the Shantung wild silk is of a
olour than the Manchurian. Moreover, the high
ure to which the cocoons are exposed so long detracts

from the strength and elasticity of the silk, which are declared to be greater than in the case of mulberry-fed silk. The result is that when the silk arrives in Europe it has to be unwound and carefully cleaned before it is thrown. The cocoons of the spring crop (*i.e.*, spun in July), although they contain much less silk than the cocoons of the autumn crop (*i.e.*, September-October), are of better quality; but little of it finds its way to a foreign market. When the moths emerge from the July cocoons, towards the end of that month or beginning of August, the females, after copulation, are tied to the oak bushes by threads attached to their wings, and deposit their eggs on the leaves. After a few days the worms hatch, and at once find their own food, requiring no further attention than the warding off of birds and other enemies. It is a curious fact that the moths emerge from the cocoons without severing a single filament, for the softening of the head-ends of the cocoons by the liquid which they eject from their mouths enables them to push aside the filaments on their way out; but the cocoons themselves are so disarranged and constricted by the pressure that it is impossible to reel them in the ordinary way. These, with the envelopes surrounding the cocoons, constitute what is known as silk waste, largely employed, principally in England, for making imitation seal-skin plushes. This wild silk is known as *Tussah*, from the Chinese words *Tu Ssŭ* (local silk).

The chief centres of the silk trade in Fêng-t'ien are the cities of Hai-ch'êng, Hsiu-yen and Kai-p'ing, and in 1896[1] 7,578 cwt. of raw silk and 2,704 cwt. of waste were exported from Newchwang by steamer. This by no means represents the total production, for much goes by junk from the numerous ports in the south of the Liao-tung Peninsula not open to foreign trade,

[1] For subsequent years see Chapter X.

whence it is carried to the Shan-tung province for sale, as well as for manufacture into pongees.

Owing to the greater weight of Antheræa Pernyi the cocoons are much heavier than those of Bombyx Mori, and they contain less silk, so that while four to five pounds of the latter will yield about one pound of raw silk, fourteen to sixteen pounds of the former are required to yield a like quantity. The following may be taken as the average weights of one thousand fresh live cocoons of mulberry and oak-fed worms:—

Mulberry (Bombyx Mori) . .	Kilo. 1·870.
Oak (Antheræa Pernyi) . .	„ 7·071.

The silk as reeled by the native method has a dark gold or copper colour without much lustre; but when treated by the western system I have seen it almost white and very glossy. It has been stated that a naturally black silk is produced in some parts of Fêng-t'ien, and the colour is attributed to the worm eating not only the leaves but also their ribs and veins. This, however, is in all probability due to diseased worms, and cannot be considered a natural product.

The average price per picul (133⅓ lb.) is about Haikwan taels 150 (say, £25). In former years it has been bought for Haikwan taels 80 a picul; but latterly it has been in great demand, and the price has been as high as Haikwan taels 200. The increasing value cannot fail to stimulate production, which is capable of great development in a country where the conditions are nearly perfect.

Next in importance to silk are furs, which are derived from a variety of animals, including the bear, cat, dog, fox, goat, hare, leopard, otter, sable, sheep, squirrel, tiger, weasel and wolf. The mountains and forests of Manchuria, especially the Ch'ang-pai-shan and Hsing-an ranges, in the Kirin and Hei-lung-chiang provinces respectively, are tenanted by bears, leopards, sables,

squirrels and tigers, and the hunters, who dwell in huts on the mountain valleys, are nominally under the jurisdiction of an official superintendent. In the Hei-lung-chiang province, however, they are more under Government control, and have to pay through their superintendent, who resides at Tsi-tsi-har (Pu-k'uei), tribute of animals and furs once a year to the Emperor. These animals are usually trapped, and the following description of a sable trap is from the pen of Mr. H. E. Fulford, who visited the Ch'ang-pai-shan in 1886: "The trap consists of a log of wood placed on the trunk of a fallen tree, and propped up at one end by a catch, which is released when the sable runs underneath, and the log pins him to the tree. A sort of run is made by pieces of wood driven into the tree in two parallel rows, between which the sable is obliged to run in going along the trunk. Two bits of bark are laid between these pegs, and the pressure of the animal on them makes the catch fly. Squirrels have also the habit of running along the trunks of fallen trees, and are caught by the same traps." Tigers, again, are caught in traps consisting of large wooden cages wherein pigs are usually tied up as bait. Bears are as a rule shot. The skins, which owing to the severe winter climate are frozen hard, are taken to Kirin and Moukden to be cleaned before the thaw sets in in spring. Another great centre for cleaning furs is the city of Chin-Chou Fu, in the south-west of the Fêng-t'ien province, but the furriers of Moukden are declared to possess the greater skill, the skins prepared there being free from smell. In the Customs Returns of Newchwang for 1896[1] prepared sable skins are quoted at seven Haikwan taels a piece, about 23s. 4d.; leopard skins at eight taels each, the price paid for the best tiger skins at Newchwang when that port was opened to trade in 1861, and tiger skins at thirty-five taels, nearly £6 sterling.

[1] For subsequent years see Chapter X.

ge and well marked tiger sk fetch very high prices, ing by no means uncommon. The Manchurian, how- much finer than the Indian tiger skin.

ar the most important branch of the skin and fur trade churia consists of the skins of the domesticated animals, ; and the goat. Many thousands of these skins are r exported from Newchwang and Tientsin, and ultimately ir way principally to the United States, and the following ing note on this subject is taken from the British r Report on the trade of New rang for the year 1887:

generally supposed that the la, wild or tame, are up wherever they may be straying, destroyed, skins sold to dealers, who e them up into mats, etc. This idea is erroneou eful inquiry having ved the fact that the business now conducted after ner of sheep farming in Au though it probably n a small, vagrant kind of way. There are thousands dog and goat farms scattered over the northern districts churia and Mongolia, where from ten to hundreds of are reared yearly. When a girl is married she receives six dogs as her dowry, and it can easily be understood is comparatively small beginning may be the foundation rge fortune, seeing that the reproduction of ten per would in a few years give an enormous total. A dog in from six to eight months, and the fur is at its best winter, so that the animal must be destroyed before the ts in. Nature has provided a magnificent protection stand the cold of these northern latitudes, where the meter (Fahrenheit) goes down to 25° below zero, *i.e.*, frost, and it is doubtful if the dog skins in any other the world are to be compared with those that come Manchuria or Mongolia, either in size, length of hair ty. The question of food for so many animals naturally

presents itself. If they had to be kept entirely by their masters the industry could not be a paying one. The coarsest grain—millet that is not good enough for horses—mixed with the ordure and rubbish of the farm, is always ready for them when by foraging outside they are unable to satisfy the pangs of hunger. Water is always ready at the farm, which cannot be procured elsewhere during the winter; and so, without counting the well-known fidelity of the dog towards its master, there are sufficient inducements for the animal to stick to the place where it has been bred." In another part of the same report Mr. Holland, the writer, says: "The flesh, even of the dogs, is no doubt used for human food, and the market value thereof enters largely into the farm's profit and loss account. The animals are fit, before spring sets in, whilst their coats are long and warm, to be killed, which is effected not by knife, which might injure the fur, but by strangulation. The skins dried and frozen find a market at Moukden and other places, where they are cured before the thaw affects them, priced, assorted, and made into mats and robes." The information which I have been able to collect on this subject agrees in the main with the above description, and does not, I regret to say, detract from the barbarous treatment of these dumb animals. In 1896, 40,723 dog-skin mats and 28,744 dog-skin rugs, of the value of Haikwan taels 28,372 and 25,931 respectively, and 9,442 goat-skin mats and 8,297 goat-skin rugs, of a total value of Haikwan taels 12,007, and 101,553 raw goat skins, worth Haikwan taels 12,396, were exported from Newchwang by steamer. Squirrel and weasel skins also leave Manchuria in large numbers: as many as 53,714 of the latter were reported at the Foreign Custom House in 1896. Nor does the wily reynard escape with his brush, for 11,728 fox tails appear in the export returns of the same year. Bear and excellent wolf skins, the latter from the Hei-lung-chiang province, are always

n the market, but they are not in great demand as articles f export. In addition to these the land-otter supplies valuable kins, and the skins of the wild cat and hare afford warm lothing to the poorer classes. Sheepskins, mostly from Mon- olia, are to be met with everywhere in winter, and the local emand is very great. They are exported in large quantities rom Tientsin, which is the chief outlet for Mongolian produce.

The great fertility of the soil of Northern Manchuria and Eastern Mongolia enables the cultivator to produce enormous rops of grain and pulse; but the distance which separates these ertile tracts from the populous centres of consumption further outh is the great barrier to the profitable disposal of food roducts. The long and expensive transport of grain by cart n winter—the only season in which the roads in the interior are it for traffic—precludes successful competition, and the result is hat large quantities of millet are disposed of for the manufacture f spirits at the numerous distilleries which are scattered about he centres of production. Here, however, I am concerned only rith the refuse of these distilleries, which is utilised for the eeding and fattening of enormous herds of pigs. These animals, rhich attain huge proportions, are, so far as I have observed, niformly black. They are either killed in winter, dressed and rought down in a frozen state by cart, or walked overland in erds to Moukden and other populous cities for sale and con- umption. But it is the bristles of these pigs which concern oreign trade, and I am convinced that this branch is capable of reat development. In 1896[1] 74½ tons were exported by steamer rom Newchwang, of an average value of 1s. 3d. per lb., but a far reater quantity finds its way through Tientsin. So, too, with egard to horse hair (manes and tails). Notwithstanding the undreds of thousands of horses, mules and donkeys engaged in

[1] See Chapter X.

the carting trade of Manchuria, only twenty tons of hair were passed through the Newchwang Custom House in 1896, against 364 tons from Tientsin. And this small quantity does not surprise me, for although I have journeyed into the centre of Manchuria I never once observed cart animals being groomed, and it may be that this hair is derived from such as have succumbed to age or to overwork. I should have mentioned above that pig's hair is mostly utilised for manure, and it is said to be specially valuable in the case of indigo.

Felt of various kinds and qualities is largely manufactured in Manchuria, the chief centres of the industry being K'uan-ch'êng-tzŭ in Kirin, and Moukden and Chin-chou Fu in Fêng-t'ien. Common or brown felt is made from ox-hair. The hair having been first washed and dried is sprinkled evenly by hand on a mould or screen of bamboo of the required length and width, the amount of hair depending on the desired thickness of the felt, and the screen is then rolled up tightly with the hair inside. The mould is rolled backwards under pressure by hand or foot for a couple of hours, water being added from time to time to soften the contents and hasten the attachment of the hair, when the mould is unrolled and the piece of wet felt placed in the sun to dry. This is coarse felt, mostly used for carpets and bed mats. It possesses little strength and has to be swept, when it *is* swept, very lightly, for the hair readily peels off with the least pressure. For the finer felt sheep's wool is used, and the shorter hairs which rise to the surface of the water when the wool is being washed are usually utilised for the purpose. It is strong and tough, and principally made up into caps and the uppers of winter shoes, and it can be readily dyed. Many thousands of pieces of felt are annually exported by steamer from Tientsin and Newchwang.

Excellent carpets and rugs of heavy pile and of any required shape, pattern or colour are manufactured by hand from camel

and sheep's wool imported into Manchuria from Mongolia. The twine used to bind the wool together is made of common hemp. The great centre of manufacture is Chin-chou Fu, whence carpets and rugs are conveyed, for export, to Tientsin, where this industry is also carried on. There is a considerable demand amongst foreigners for these manufactures, but unfortunately in damp climates they are liable to emit a disagreeable smell.

I have already referred to the trapping of the tiger for his valuable skin, but that is not the only part of the animal to which the hunter gives his attention. The bones find an honoured place in the Chinese pharmacopœia, and in the Customs Returns of Newchwang for 1896 tigers' bones, weighing 3,600 lb., and valued at 1s. 3d. per lb., appear as an export. The deer, too, is hunted for his horns and sinews, both of which are utilised as medicines. Pits, ten to twelve feet deep, are dug in early summer in the forest tracks and carefully covered with leaves and twigs, for it is then that the horns are "in the velvet" and realise a high price. As many as 1,644 pairs of young horns were exported by steamer from Newchwang in 1896, and they were valued at Haikwan taels 45,600, or an average of £5 a pair, but good specimens will often bring in as much as £30 to £40. The old horns, which are of little value, are usually boiled down to make medicinal glue.

The musk deer is also found and hunted in Manchuria, especially in the forests of Kirin, and the musk is exported both through Newchwang and Tientsin. The pods which arrive at the former port vary very much in size; while ten large ones go to a catty (1⅓ lb.), as many as thirty of the smaller pods are required to make up that weight. It ranges in price from forty to fifty taels a catty. Only sixty-five catties were exported by steamer from Newchwang in 1896. I am told that much of the exported article is adulterated, and it seems highly probable, for I notice that the musk exported from Thibet by way of Ya-tung

and India is about eight times as expensive as the Manchurian article.

The hides of ponies and mules are dressed and manufactured into saddlery and cart gear generally. The hide of the ass is more valuable; it is dressed, coloured and cut into narrow strips of leather an inch wide and eighteen inches long, which are exported, and used for binding the uppers, toes and heels of Chinese shoes. In this form it is very expensive, and is valued in the Customs Returns at over £20 a picul (133⅓ lb.). Ox hides are dressed and tanned, and the principal use to which the leather is put is the manufacture of the Manchurian shoe universally worn, stuffed with *wu-la* grass, by the working classes throughout Manchuria in winter. The uppers and sole of this shoe are one piece of leather bent into the shape of a foot, with a high tongue attached to the uppers to keep out snow. This *wu-la* grass (*ts'ao*) grows in the marshy lands of Manchuria, especially in the Kirin province, to a height of two to three feet, when it is cut down, made into bundles, and beaten by mallet until it is soft enough to be used for padding. Ass and ox hides are also boiled down to make glue, but the product from the ass, although called glue, is in reality a medicine called *A-chiao*, so named from Tung-a Hsien, in the Shantung province, where there is a well celebrated for the excellence of its water and of the herbage which surrounds its mouth. The term *A-chiao* was originally applied to the glue derived from the hides of donkeys which browsed on this herbage and drank the water of this well, but it is now applied to ass-hide glue throughout the whole of China. The *A-chiao* of Moukden is famous.

There is another animal, a native of the province of Hei-lung-chiang, whose skin is highly valued for clothing in these cold northern regions. It is called Han-tan-han, and, although the skins are brought to Kirin from Tsi-tsi-har in considerable

quantities, I have failed to obtain even a description of the animal. It is supposed to belong to the deer family; at any rate the hair is removed and the skin is worn in the same way as chamois leather is sometimes worn with us in severe weather. Since writing the above I have examined the prepared skin of one of these animals, and the tufts of brown coarse hair on the edges leave no doubt that it belongs to the deer family. The skin is much whiter and thicker than the ordinary chamois leather of commerce, and almost as soft. The skins are large, and the one I examined cost about taels ten (£1 10s.) in Kirin.

Bees are cultivated in Manchuria, the hives being made of pieces of the hollowed-out trunks of trees about a yard long, which are usually suspended on the walls of houses. The hives are filled up at the ends with wood, a small opening being left at both ends. Beeswax to the amount of 33,467 lb., of the value of £1,056, was exported from Newchwang by steamer in 1896. It is used principally for coating pills.

In Chapter I. I mentioned that the Amur, Sungari and Ussuri teem with a great variety of fishes, including the sturgeon, and in the autumn with shoals of the tamara salmon, whose skins the Yü-p'i-ta-tzŭ utilise for making clothes. Trout also abound in the mountain streams forming their tributaries. I made an attempt to collect and forwarded to England specimens of fishes, crustaceans and molluscs found on the seaboard near Newchwang, and the following list of identifications has been received by me through a friend from Dr. Günther of the British Museum:—

Chinese Name.	Identification.
Pa Yü	Cybium gracile, Günth.
T'ung-lo Yü	Sciæna tenlo, Basil.
Hsiao Ta-pan Yü	Cynoglossus gracilis, Günth.
Ta Ta-pan Yü	,, semilævis, Günth.
Lu Yü	Lateolabrax japonicus, Schleg.
Hai-chi Yü	Chatœssus punctatus, Schleg.

Huang-hua Yü . . .	Sciæna crocea, Rich.
Ta-tou-pao Yü . . .	Collichthrys lucida, yg. Rich.
So Yü	Mugil so-iuy, Basil.
Tao Yü	Coilia nassus, Schleg.
Lien Yü	Silurus asotus, L.
Pan-tou Yü	Globius hasta, Schleg.
Li Yü	Cyprinus carpio, L.
Chiang-pan-tou Yü . .	Hypophthalmichthys molotrix, C.V.
Pai-ku Yü	Opsariichthys morrisonii, sp. n., Günth.
Hui-wang Yü . . .	Macrones longirostris, Günth.
Shan Yü	Anguilla bostoniensis, Les.
Pai Yü	Culter erythropterus, Basil.
Ko-ya-tsü Yü . . .	Macrones vachelii. Bagrus (?) vachelii, Rich. Silurus calvarius, Basil. Pseudobagrus vachelii, Günth.
Chien-tou Yü . . .	Platycephalus cultellatus, Günth.
Yang Yü	Trygon sp. yg.
Me-tou (Cuttlefish) . .	Loligo sp. yg.
Ta-tui-hsia (Prawn) . .	Penœus monodon.
Ching-hsia (Shrimp) . .	Palæmon sp.
Hai-pang-kai (Sea Crab) .	Neptunus pelagicus.
Ho-pang-kai (River Crab) .	Platynotus depressus.
Mien-tiao Yü (Whitebait) .	Harpodon nehereus, H.B.

In addition to the above there is a species of cod w swarms in these northern waters during the autumn, and be kept frozen throughout the winter months in Manch Two species of oyster—the small rock oyster and the large oyster—are similarly preserved. There is also a large bi called Ha-la-pi, and known locally as the "Butter Fish," w would appear to have been omitted from the box of speci forwarded to England.

The minerals of Manchuria have not yet been scientifi explored; but gold, iron, coal and soda are extensively wor and silver, copper and lead are known to exist. Gold is wi distributed throughout the three provinces of Manchuria; the richest deposits are found in the far north, on the r bank of the Amur, the dividing line of Manchuria and Sib Indeed, a fellow-passenger, a distinguished mining engi

ormed me that the conglomerates which we saw in several ces on the banks of the Upper Amur are exactly the same mation as at Johannesburg. In Fêng-t'ien gold is known to st at two places in the Liao-tung Peninsula, in the east near city of T'ung-hua Hsien, and a few miles to the north of o-êrh-shan, between the Ya-lu River and the Ch'ang-pai-shan untains. In Kirin it is found forty miles to the north-east Hun-ch'un, near the Russian frontier, in the bed of a tributary the Tumên, still further north in the valley of the Sui-fên er, which flows into the Amur Bay on which Vladivostock nds, sixty-five miles west by north of Hun-ch'un in another utary of the Tumên, on the banks of the Upper Sungari l its tributaries, and seventy miles to the east of Sansing—a n at the junction of the Sungari and the Hurka or Mu-tan er—near the headwaters of a river which flows into the gari to the north of that town. In the Hei-lung-chiang vince I noticed between the mouth of the Sungari and goveschensk, and on the right bank of the Amur, the gold-ning camps of T'ai-p'ing-k'ou, between the Russian villages of ngan and Pompeevka on the opposite bank, and at Kuan--shan, opposite Raddevka. There is another Chinese mining up fifteen miles north-west of Blagoveschensk, and forty miles t of the junction of the Shilka and Argun is Mo-ho, the most portant mining camp in Manchuria, on the right bank of the ur, about a mile above the Russian village of Ignashina or atina. The mines themselves lie twenty-three miles inland. re rich deposits of gold are found in the bed of a small utary of the river which joins the Amur below Albazin. I ited the camp at Mo-ho, but the information which I collected re was very conflicting. It will be found in another pter. Gold is also washed in the beds of the Arakan, which n the Argun thirty-five miles south-west of its confluence with Shilka, and the Urgi, a tributary of the Kang, which enters

the Argun between Staro- and Novo-Tsuruhaitu. Gold is no doubt found in other parts of Manchuria, but the above are the best known centres. Most of the mines are worked by companies under Government superintendence and control, and civil and military authorities and troops are stationed thereat for their administration and protection against armed robbers, who have in the past frequently attacked the mines. I had often heard that much of the gold which finds its way from Manchuria to the port of Newchwang is of Siberian origin, and when travelling along the frontier I made particular inquiries on this point. What I learned was this, and I give it for what it is worth. I was told that the Russian Government claims the right to purchase all gold mined in Siberia, and that it pays the miners 15 to 25 per cent. less than the market value of the metal. The result is that gold is smuggled across the Amur and sold to Chinese, who pay higher prices than the Russian Government. As many of the miners in Siberia are Chinese, there is little difficulty in carrying on the contraband traffic. Another story I was told is that some Chinese high officials, who are shareholders in Manchurian gold mines, are also proprietors or part-proprietors of Chinese banks, and that they are able so to manipulate the affairs of the mines that the gold is sold to their banks much under its real value. The one story is probably as true as the other, and there may be some connection between the latter and the following extract from an Imperial Decree published on 11th July, 1899: "As regards the Mo-ho gold mines, which have already provided funds for public use, the procedure has been entirely satisfactory. The amounts lately received have, however, been growing less and less, and orders must be given for a thorough reorganisation of the mines' affairs." The paragraph which follows the above extract from the Imperial Decree gives another reason why the finances of enterprises under Chinese Government control are never

reported as flourishing except at the very outset: "The Ch'ien An gold mine, lately opened in the province of Chihli, has shown a profit in a remarkably short time. Regulations for its contribution to revenue must also be made"! That the precious metal is found in some abundance in the province of Fêng-t'ien will be seen from the following extract from a letter written by a correspondent at Moukden to the *North China Herald*, published in Shanghai: "We have a small Klondyke in Eastern Manchuria. In the spring of last year some travellers were seen in small inns to the east conveying several large bowls full of rich red gold. These travellers became so common that curiosity of the most eager kind was aroused. They were discovered to be hard-working farmers and farm-labourers in a certain valley where they had discovered the gold, and had quietly dug away without informing the authorities. The rush last autumn was so great to that particular place that the authorities soon heard, and therefore sent men there to keep order. It is said by spiteful dwellers in the east that far better order would be kept there if no soldier appeared. That, however, did not keep the soldiers back. Some of the more lucky made as much as twenty Chinese ounces per day. It says a good deal for the wisdom of most of these men that when they had a few days of such work they quietly went away with their spoil to enjoy it. During the three last months of the season preceding the hard frost 5,000 Chinese ounces of gold were reported. How much disappeared without such report my informants were unable to say. Some Corean labourers, who made as much as taels 200 in a fortnight, felt constrained to have a jolly time, and when the money was spent went to work again. This goldfield, the richest ever found in Manchuria, is on the western slope of a low hill, whose acclivity is so gentle that it is wholly cultivated. A small stream ran down its side, and laid bare a reddish yellow earth beneath the

usually clay colour so general in our soil here. In this reddish earth was the gold found. A bowl full of that produced several ounces of gold. The gold is of the richest red variety, and commands the highest price of any gold in the market. Excitement is great and widespread. Though the course of that stream was barely the sixth of a mile (half a *li*) there were over 2,000 diggers at work. There are twelve men to each claim: one to superintend, one to cook and ten to work. They share equally. The claim is large enough to admit two men, one with a mattock, the other with a spade. But it is rather tight work for the two to stand there at one time. A great rush and much trouble are expected with the relaxing of the frost's tight grip. At present Chinese are not allowed even to go to look into the numerous pits. It appeared to me that there was no particular reason why the rich deposit should be confined to that small stream. The same soil and the same sub-soil are spread over a considerable area. In very many other valleys I have seen or heard of gold-finding, but none to compare with this particular place. In the others gold lies deep down among gravel; but in this it is in the rich yellow earth. Here is a problem. Such gold is usually described as having been washed away from some higher point, where time, the season and the rains tore it from the grasp of its parent rock. Here there is no higher point; for the low hills run parallel with mountains of considerable altitude, but separated from them by valleys. The rock must, therefore, have rotted away *in situ*, leaving the gold embedded in the earth, into which the rock became transformed. Rotten quartz abounded to the east of this goldfield. Externally a lump of quartz looked as quartz usually does, but when broken it was in almost every instance covered in the fracture with a rust-like colour."

There are extensive coalfields in the Fêng-t'ien province—in the department of Liao-yang, to the south and south-east and

north and north-east of Moukden—where excellent coal is mined, in the centre and west of the Liao-tung Peninsula, and in the south-west and east of the province generally. A much softer coal is found in the province of Kirin, near the city of that name, and other mines have recently been exploited by Russian engineers in search of fuel for the use of the coming Trans-Manchurian Railway.

Iron is found to the north of the Liao-yang coalfields, more especially within the district of T'ieh-ling, forty miles north of Moukden. In fact the presence of iron gives the district its name, T'ieh-ling meaning "Iron Range". It is also found in the east of Fêng-t'ien.

Asbestos is met with in the district of Huai-jên, in the east of the southern province.

Soda is found and worked in the south of the Hei-lung-chiang province, whence it is exported in cakes to Southern Manchuria and Northern China, where it is largely used in dyeing establishments and to dissolve the gum of cocoons in silk reeling.

CHAPTER IX

SPECIAL INDUSTRIES OF MANCHURIA

IN discussing the agricultural and animal products of Manchuria I have in some cases touched lightly, and in others fully, on the industries to which they have given rise, such, for instance, as silk, vermicelli, indigo, etc.; but there are one or two industries of great commercial importance, such as bean-cake and bean-oil, salt and *samshu* (*shao-chiu*), a native spirit, which deserve a more detailed description, and it is with these that I propose to deal in this chapter.

In Chapter VII. I enumerated the various kinds of beans containing oil or fat, and I shall now proceed to explain the method adopted in Manchuria for extracting the oil. A large stone wheel of dressed granite about ten feet in diameter and two and a half feet thick at the axis, gradually contracting to a foot at the rim, which is smooth, revolves in a circular well from thirty to thirty-six inches broad, paved with stone and bounded on each side by a low wall of concrete or wood two to three feet high. The massive wooden axle on which the wheel revolves has its opposite end firmly fixed in a huge beam which rises vertically from the centre of the hollow circle formed by the inner wall of the well and which revolves with the wheel. Behind the wheel and supported by a plank fixed near the opposite end of the axle is a wooden framework which just sweeps the floor of the well. The front of this framework has a metal share like a plough, and affixed to the rear is a small square of wood inclined to the inner wall with a loop of rope

or leather nailed to and projecting from it. The beans to be crushed are heaped in the well against the inner wall. Two mules, blindfolded, are harnessed to the wheel, one in front, the other behind, and walk in a track outside the outer wall. At the first revolution nothing is crushed; but the loop at the end of the framework drags the beans on to the floor of the well and at the second revolution these are crushed by the wheel and swept towards the outer wall by the share, making way for a fresh supply of beans dragged on by the loop arrangement at each revolution. In this way the beans are crushed into thin wafers; but this style of wheel is now somewhat antiquated, and has been to a great extent superseded by an improved method of feeding and crushing, which I shall now describe. A massive stone roller, measuring forty-two inches long with a diameter of fifty-three inches, has the centre of its rim cut to a depth of a quarter to half an inch and polished. The breadth of the cutting is nineteen and a half inches, leaving a margin of dressed but not polished granite on each side eleven and a quarter inches broad. On a circular platform edged with polished granite eighteen and a half inches wide, with a gutter or hollow all round twenty-three inches across—the whole enclosed by a low wall of stone or wood the height of the platform—this granite cylinder is placed so that the polished centre rests on the stone edging. It is kept in position by a long round beam which rises from the centre of the platform, wherein it is firmly fixed, and passes through the centre of a stout plank into the inner side of which the projecting iron axle of the cylinder fits. The iron axle on the other side of the cylinder fits into a similar plank, and these two planks are bound together at the ends, which project some distance beyond the cylinder, by two similar stout planks. At the point where the beam passes loosely through the inner plank both beam and plank are bound with iron, and the top of the beam is firmly fixed to a beam in

the roof of the house. Two mules, whose track lies outside the low encircling wall, are harnessed to the projecting ends of the planks, and, as they walk round, the cylinder and wooden framework revolve round the centre beam. To the other side of the plank, through which the centre beam passes, a wooden feeder is attached. It is four-sided, about three feet high, wide at the mouth and contracting towards the bottom, which just rests on the stone edging of the platform. In the rear of the feeder and close to the platform there is a small square hole, the opening and shutting of which is regulated by a wooden slide, and attached to the rear and outer side of the feeder is a wooden hoop which prevents the beans from rolling from the platform into the gutter. Behind the feeding hole a hoop of iron with holes drilled in the lower edge is fixed for the purpose of spreading the beans evenly on the stone edging of the platform, and attached to the front of the feeder and grazing the platform there is a narrow iron share arranged in a slanting direction, so that it sweeps all before it into the gutter. Let us suppose now that the mules have been harnessed to the planks projecting beyond the stone cylinder or crusher, and that the feeder is full of beans and the slide open. As the mules walk round the beans escape from the feeder and are spread evenly on the stone edging of the platform by the perforated iron hoop or rake, and prevented from rolling into the gutter by the wooden hoop. Round comes the cylinder and crushes the beans into wafers, which at the next revolution are swept from the platform into the gutter by the share in front of the feeder. The first process, that is, the crushing of the beans, is now complete. The bean wafers are then removed from the gutter in baskets and steamed. A number of brick furnaces two to two and a half feet high are fitted on the top, with large open shallow circular iron pots more than half full of boiling water. A couple of inches below the lip of each pot a

circular wooden grating is inserted, and over this is spread a square piece of coarse hempen cloth When the water boils the steam ascends through the grating and cloth, and on the latter a basketful of bean wafers is spread and steamed for a quarter of an hour, when they are sufficiently soft to be moulded into cake for the oil-press. I have weighed these bean wafers before and after steaming and found the weights to be 54½ and 60½ catties respectively. Two iron rods of equal length are placed parallel to each other on the ground, and two similar rods are laid crosswise and parallel on the top to form a square in the centre. On these two stout iron hoops, twenty-three inches in diameter and two inches deep, are placed, and on these again a thin bottomless wooden filler of like diameter and eighteen inches high is adjusted. Two bunches of grass, each tied at the base end, are, after being steamed, fitted into the wooden filler, the tied ends downwards, and the loose ends are spread fan-shape over the rim of the filler. Another thin piece of wood seven and a half inches deep is then bent by hand into a second filler—the edges overlapping—and pushed down on the top of the grass inside the large wooden filler. The steamed beans are now carried from the grating in the piece of hempen sacking, poured into the inner filler and hammered down, the workman afterwards stepping in and pressing them hard with both feet. While thus engaged he draws up the inner filler, and, when the beans are sufficiently pressed, he bends down, raises the outer filler and adjusts the iron hoops an inch or more apart on the grass now containing the beans. This done, he steps out, removes both fillers, and, seizing the ends of the grass with his hands, carefully arranges them towards the centre to cover the beans. Two short iron rods are now placed on the top to keep the grass down. On the top of this grass-wrapped cake four other cakes are similarly moulded, the short iron rods being removed from the top of the cake below as the cake above is completed.

A side view now shows five grass-covered cakes, one above the other, each bound with two iron hoops. They are now ready for the oil-press. This consists of four massive wooden pillars, some ten feet high, embedded in the ground, and arranged in two pairs at a short distance from each other, each pair bound together at the top and forming an angle. A log of wood fixed horizontally in the apices of the angles binds the two pairs together. In the floor between the pairs of pillars is embedded a thick, round base of willow wood guttered all round, and with a mouth leading to an underground tank for the reception of the oil. The five cakes are dragged on to the base, the short iron rods are removed from the top cake, and three short logs—the ends facing the workman—are laid on the top of the cake. Above these are placed crosswise longer logs passing through the two angles made by the two pairs of pillars until the space between the cakes and the cross log uniting the pillars is filled. Wooden wedges, bound at the thick end with iron, are now driven in between the upper logs at each side by the workman, who wields with great effect a heavy, short-handled iron hammer suspended at each side from a cross beam erected above the press. After a few minutes the oil may be seen pouring from the cakes, descending to the wooden base, and thence finding its way to the underground tank. From time to time the wedges are knocked out, another log inserted, and the wedges again driven home. This process goes on for two hours, when the extraction is complete. The cakes are then dragged from the press and the iron hoops and grass casings removed. Each cake is now a solid mass, twenty-three inches in diameter and four inches thick, with a slight protuberance all round the centre of the edge, caused by the great pressure on the weak part of the cake between the two iron hoops. Each cake is taken separately, and the protuberance pared off by means of a double-handled, semi-circular knife. The parings weigh

bout two catties and the trimmed cakes fifty-three catties each, total of fifty-five catties when removed from the press. But ıe steamed beans when inserted weighed sixty and a half ıtties, and the difference of five and a half catties, or over ın per cent. for crushed beans weighing fifty-four and a half ıtties, should represent the quantity of oil extracted. I am ıured, however, that nine per cent., as stated in Chapter VII., a fair average. After being trimmed the cakes are stored in odowns ready for shipment to Swatow and Amoy, where they re macerated and applied to the sugar cane fields as manure. ven in the godowns they lose weight, and when they reach heir destination it not unfrequently happens that a cake eighs less than fifty catties. Beans, bean-cake and bean-oil ary greatly in price from year to year. In the decennary end-ıg 1891 the average values were: Beans, Newchwang taels 2·91 er picul of 300 catties (400 lb.); Bean-cake, N. taels 3·69 er ten pieces, and Bean-oil, N. taels 3·43 per picul of 100 atties.

During recent years the prices have been higher; in 1897 hey were N. taels 4·95, N. taels 5·8 and N. taels 7·3 respec-ively. This oil is used for both cooking and lighting, and is xported by steamer and junk to all parts of China. Up the Yang-tsze, however, and in the southern provinces, it has rivals n the so-called tea-oil and ground nut-oil manufactured from he seeds of *Camellia sasanqua*, *Thunb.*, and *Arachis hypogæa*, L., respectively. In 1896 a bean-oil factory with foreign nachinery manufactured in Hong-Kong was erected in the port f Newchwang. The beans are crushed between pairs of iron ylinders driven by steam, and the crushed bean wafers, treated s above described, are placed in iron screw presses turned by apstan bars by hand. With this exception the process of manufacture is the same as in the native mills. In the foreign ill the oil is pumped from the underground reservoirs into

iron tanks, where it is stored before being run into the wicker waterproof baskets for shipment. Oil extracted in the mills in the far interior of Manchuria is packed in large waterproof boxes to enable it to bear the rough transit by cart to the port, and on arrival at Newchwang the boxes are opened and the oil transferred to baskets for export.

In the low-lying lands of the Liao-tung Peninsula, and more especially between the port of Newchwang and the city of Kai-p'ing Hsien, where a number of creeks penetrate inland from the sea, much of the ground is given up to the manufacture of salt by sun evaporation. Previous to visiting these salt-fields I was under the impression that sea-water was simply run on to the fields and allowed to stand there until the water dried up and left a deposit of salt; but I found on personal examination that the process is much more elaborate, and is carried on not without a certain amount of rude science. Nearest to the creek or open ditch leading from the creek—these ditches ramify all over the saltfields—are five large square or oblong plots of land (Shui Chüan) sunk in the soil, each carefully dyked and capable of containing water two to three feet deep. Small openings, which can readily be closed by pieces of wood, allow the water to run from the first plot or tank into which the sea-water is baled from the creek or ditch to the second, third, fourth and fifth tank. Next to these tanks are eight similar but smaller tanks (Lu Tang), and beyond six and sometimes eight similar but smaller tanks (Yen Chih), in the last of which the salt ultimately crystallises. The three sets of tanks all communicate with each other by means of small openings in the dykes, which can be closed at will. In the first two sets of tanks the beds or floors are flat, but in the last set, which are shallower, they rise gradually from edge to centre. In the end of autumn the beds of the last set of tanks (Yen Chih) are beaten hard by wooden mallets—the soil is

clay—and sea-water is run into them through the other sets of tanks. That is allowed to remain frozen over winter, and in spring the beds of the Shui Chüan and Lu Tang are levelled and beaten hard. When the water thaws in the Yen Chih it is carried back by a small drain to, and stored in, the third and fourth of the Lu Tang or middle set of tanks. This water is now called the Lao lu or old brine, and the workmen contend that crystallisation is hastened by the sea-water passing through it from the Shui Chüan on its way to the Yen Chih. When the old brine is removed from the latter the beds are again hardened. Everything is now in order for the manufacture of the salt. The Shui Chüan are ready for the reception of sea-water from the creek, the third and fourth tanks of the Lu Tang are full of Lao lu (old brine), the other six being empty, and the Yen Chih are also empty. When the Shui Chüan are full the water at once passes on to the Lu Tang, mingles with the Lao lu, and remains there eight days. Science now steps in. The headman has to say when the time has arrived to allow the water to pass through the last Lu Tang to the final set of tanks (Yen Chih), *i.e.*, to test its specific gravity. This he does by using the egg-shaped seeds of the lotus. It was only after an hour's cross-questioning—the Chinese mind works in a series of curves—that a headman produced from a small bag hung round his neck by a cord under his clothes four lotus seeds of different colours and weights. They represented, according to him, thirty, fifty, eighty and a hundred per cent., and when the heaviest, that is the last, floated on the surface of the water, the time had come to allow the water to escape from the Lu Tang into the final set of evaporation tanks (Yen Chih). Not all, however, for as Lao lu (old brine) must be retained in the Lu Tang for the next supply of sea-water, only one-half is permitted to flow into the Yen Chih. Much now depends upon the weather. In the hottest and brightest days of summer salt

crystallises in the final tank in forty-eight hours; but three to four days are usually required in spring and autumn. Ten to fourteen days, therefore, may be reckoned as the time necessary to complete the manufacture from the time the sea-water enters the Shui Chüan till the salt falls in large crystals on the bed of the final tank, whence it is scooped up by means of a wooden rake and spread out to dry. When it has been collected the water from the next tank takes its place, and so the process goes on. The crystals are large—some clear as glass, others white and opaque, while others again are dingy and muddy. The purity of the salt depends, in a great measure, on the hardness of the bed of the final tank. If it is at all soft, mud is scooped up with and discolours the salt. On an average five piculs (a picul of salt weighs about 600 catties or 800 lb.) are collected from the final tank at one time, and the average production of a set of tanks for seven months' working amounts to 300 piculs (of 800 lb. each), or 107½ tons. Much, however, depends upon the season: dull or rainy weather retards the evaporation. The price of salt at the works is from 12 to 13 tiao (roughly speaking, 6 tiao are equal to 1 Mexican dollar) per picul (800 lb.), and the tax per picul of the same quantity payable by the buyer at the Salt Collectorate Office near at hand amounts to 7½ tiao, or more than 50 per cent. *ad valorem*. The cartage per picul from the place of production to the port of Newchwang is 4 tiao, bringing the price per picul at the time of shipment for the interior of Manchuria up to 24 or 25 tiao, or about $4. To avoid this cartage, boats which have come down from the interior with beans frequently ascend the creeks, load a little salt and return to the port to fill up with return cargo. The shallowness of the creeks prevents their taking full cargoes at the works.

The production of spirit from grain (Millet—*Holcus sorghum, L.*), as carried on in Manchuria, is the same in principle as

ewhere, depending as it does on the development of grape
ar from starch in the grain and on the action of a ferment
the sugar generating alcohol, which is separated by distillation.
e process, however, is vastly unlike that practised in the West.
e various operations are not so clearly differentiated, since,
h the exception of distillation itself, they proceed together at
: same time, and grain in different stages of decomposition is
ced in the same receptacle. The Manchurian method displays
siderable ingenuity of a rough kind, and is evidently the
ult of prolonged observation and gradual adaptation of
ans. It is, on the whole, simple in appearance, though
ublesome in operation. As in all distillation processes, even
ere a great number of men are employed, the "making or
rring" of the work is in the hands of a few skilled workmen,
om long experience has made expert. These men do not
ow the inner practical secrets to pass from them easily, as the
nmanding of a good salary here, as elsewhere, requires that
: supply does not exceed the demand, and they are therefore
des unionists to the extent of objecting to apprentices. A
t-class distiller has an easy time, and, for a Chinese, an enviable
ary. Of course these men understand the process merely as
ractical one; no theoretical study or explanation is attempted.
The operation demanding most experience and skill is the
paration of the fermenting agent. In all places the com-
nents of the ferment are not alike, but, as a rule, three parts
barley (Ta Mai) to one of peas (Hsiao Tou) are the pro-
rtions generally used. This mixture is ground coarsely, the
rley husks not being removed. To this water is then added
til the whole is of the consistency of putty, when it is pressed
n by foot into wooden moulds in size and shape like brick
ulds. When firmly shaped these grain bricks are removed
d piled in a room just as bricks are piled in a kiln with
erstices for the free passage of air, to the height of four or

five feet, 6,000 to 10,000 being made and piled at one time. Now it is that the skill of the expert is called for. The room is closed up, any cracks in doors and windows being at first carefully papered over to exclude the air. Abundance of light and heat comes through the paper windows, but no air or draught is permitted until the correct temperature is reached and the process of fermentation induced by the heat of the room and the moisture and heat of the grain bricks themselves. Gradually a fungoid growth forms on the surface, and the skill of the operator is now required to keep temperature, moisture, etc., under control until this change has permeated the entire substance of the bricks. He does this by opening windows, by using artificial heat, or by repiling the whole or part of the bricks as he sees needful. About forty days are necessary to perfect the ferment. In spring artificial heat has to be employed, and in summer it frequently happens that the temperature has to be reduced by currents of air. In winter the ferment cannot be manufactured, and provision is made in the spring and summer months for a supply sufficient to last the whole year, and there is usually some old stock in hand when the new year's is ready for use. The ferment (Ch'ü-tzŭ), when properly dried, will retain its active properties for even five or six years. A moderate-sized distillery has in the season several batches in course of preparation at different stages, each batch consisting of from 5,000 to 10,000 bricks, and possesses in addition a large stock of the perfected and dried material.

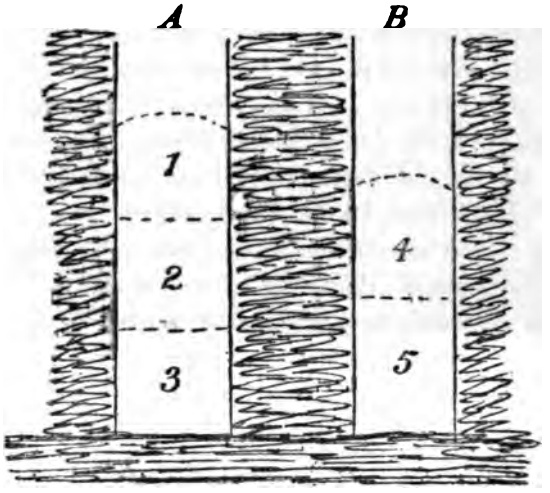
The preparation of the grain is carried out in a curious way. Whereas by the Western process germination is induced by moist, and arrested by dry heat, in the development of grape sugar in Manchuria the grain is first crushed and afterwards moistened. Then a quantity of the ferment is ground fine, added to the grain and thoroughly mixed with it. The whole is thereafter put into pits, tramped layer by layer, covered over

with chaff, and a layer of moist clay—the red clay of Manchuria is very tenacious—spread over all. The latter forms an air-proof cover, beneath which all the chemical changes in the grain antecedent to distillation simultaneously proceed, great heat being developed. For eighteen days the contents of the pits are daily tramped "home," to keep the grain in close contact with the ferment. At the end of this period the grain on being removed is partially decomposed, has a sweet, spiritous taste, and is ready for the first distillation. I should have mentioned that from time to time an opening is made in the clay covering, and an iron bar thrust in several places down to the bottom of the steep pit. (By analogy it may be so termed, though the grain is only moist.) This has a twofold object. The operator can ascertain the stage of decomposition by sense of smell, which is spiritous as the time for distillation draws near, and the gas developed in the meantime is allowed to escape. The fact that an unskilled hand, if attempting to test too closely the state of the grain by smell, may collapse from the effect of the gas escaping shows that poisonous carbonic acid gas is developed here just as in the Western method of manufacture.

The above is a brief statement for the sake of clearness; but, in practice, the process is somewhat more complicated, as the grain is successively subjected to the action of the ferment and distilled five times before it is regarded as refuse and discarded in the shape of "grains". Evidently experience has shown that only a surface action takes place in each successive operation, that the grain is only partially acted on by the ferment each time, and it is never—unless when a distillery is first opened—subjected continuously to the action of ferment for more than nine or ten days at a time. In practice, then, the process is somewhat as follows: In connection with each still in a distillery there is a series of about twenty-five pits some ten feet deep, seven long and two and a half broad, the

contents of which are emptied and distilled in rotation, two or thereabouts being emptied daily, as the whole series is gone through in nine or ten days. As the pits are closely connected in pairs, and are always worked together, it will be more convenient for the sake of description to take the operations conducted with one pair.

The accompanying diagram represents a vertical section of a pair of pits (A and B) in which grain (millet) is stored.



Part of this grain has gone through the still once for simple steaming, part twice, etc., up to four times. The grain is packed in layers which differ in colour, each distillation leaving them darker than the preceding.

The three layers stored in A are placed on the floor, and to each layer fourteen bushels of raw grain are added. Each layer with the added grain is then put into the still and subjected to the same treatment in every way; but in the case of this raw grain the idea is to render it more amenable to the action of the ferment afterwards. The three layers are kept distinct, as

ı contains sufficient, with the added grain, to fill the still. make the subject clearer, I shall take as an example the ɛr marked 1 in pit A. This upper layer always contains a ger proportion of grain as yet undecomposed. It is spread the floor, has fourteen bushels (about 560 lb.) of raw broken in added, and is then placed in the still and steamed. Any ɛ grain gives out its spirit, and the raw grain has its tissues ened. When the alcohol present has come over—which ıpies less than two hours—the grain is turned out on the ır and thoroughly cooled by being pitched by shovels high ɔ the air, striking the roof and falling at a distance in ıarate grains. Fifty to seventy pounds of the ferment are ɾ added to the cooled grain and thoroughly incorporated h it, and the whole is again packed as a layer in a pit, ɛnce, after nine days or so, it is brought out to undergo same series of operations. So with layer 2 in pit A. Now se two layers (1 and 2 in pit A) with their added grain (raw) ıpletely fill a new pit, and in the next operation they will subdivided and worked, on the expiry of another nine days, ɛhree. The lowest layer (3 in pit A) has also grain added, ; after distillation, it is placed in the new B pit. The upper er (4) in pit B has no grain added: it has already been acted (in part at least) three times, and it forms, after distillation, lower layer (5) of the new B pit. It is the oldest of the ɾ series of layers in the two new pits now made ready for tillation after another nine days. The lower layer (5) in B has already been distilled (in greater part) four times, and er another distillation it is regarded as refuse. It should remarked that as it contains much raw grain the quantity spirit from layer 1 in pit A is small and the quality poor. yers 3 and 4 contain most and the best liquor, while layer 5 ıgain poor in yield and decidedly bad in quality, probably ıtaining with the product of layer 1 much fusel oil.

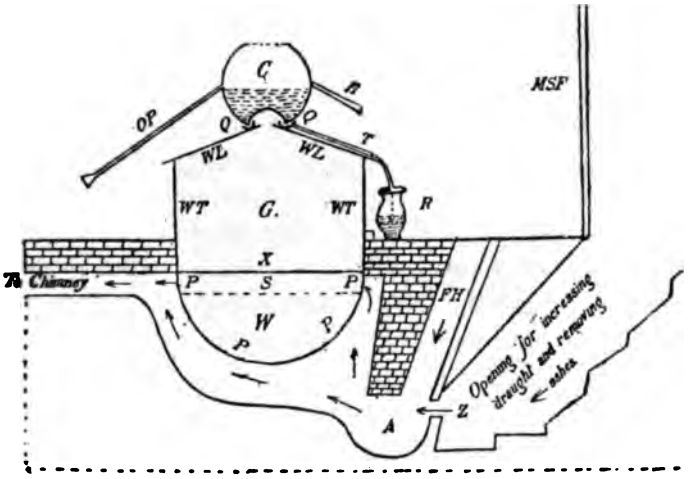
In some parts of the country where millet is cheap and labour dear the grain is not subjected to distillation five times. It is rejected as valueless after the fourth, and in this case, therefore, no raw grain is added to any but the first two layers. What has been distilled twice will not have any grain added, as its contents could not be exhausted in time.

For the market the products of the successive stillings are mixed together, but there are always ways and means of procuring the best stillings if required. The quantity of spirit yielded by one stilling, in which 42 bushels (1 bushel equal to 40 lb.) of millet are used, is at best 800 lb.; but it very often falls far short of that amount.

I should mention that the work of distillation goes on continuously night and day, and that the men divide their work into alternate batches, each gang taking complete charge of one stilling.

I come now to the apparatus and the process of distillation itself, and the accompanying diagram of a section of a still will enable the reader to follow with greater intelligibility the verbal description.

When distillation is about to proceed, the iron pot, which is some six feet in diameter and three to four feet deep, is three-quarters filled with water, leaving a space of about twelve inches between the surface of the water and the screen marked X. The wooden tub, which is fitted into the mouth of the pot and rests on the screen, is filled with grain (millet) prepared as above described, the lid with the opening at the top is placed tightly on the tub, and the condenser is adjusted so as to rest in the leaden drain or gutter which runs round the opening. The condenser is then filled with cold water, a plug having been previously inserted in the mouth of the overflow pipe to prevent its escape. Millet stalks are now thrust down the "feed-hole" (FH) and fired, and so quickly do they burn that



SECTION OF STILL.

P	stands	for	Iron pot.
WT	,,	,,	Large wooden tub fitting tightly into top of the pot.
W	,,	,,	Water.
S	,,	,,	Steam.
G	,,	,,	Grain (millet).
X	,,	,,	Screen, between steam and grain, on which the grain rests. It consists of iron or wooden bars, with a sieve on the top roughly made of millet stalks, and fits into pot a little under its mouth.
WL	,,	,,	Wooden lid or cover of tub, open at top.
Q	,,	,,	Channel or drain (of lead) running round the opening at the top of, and fixed to, the wooden lid.
T	,,	,,	Leaden tube fixed in channel Q for carrying the distilled spirit to the receiver.
R	,,	,,	Receiver, an earthenware jar.
C	,,	,,	Leaden condenser with curved bottom fitting into the channel Q.
OP	,,	,,	Overflow pipe for the escape of heated water from the condenser.
H	,,	,,	Handle of condenser.
FH	,,	,,	Furnace or feed-hole for fuel.
A	,,	,,	Ash pan or pit.
F	,,	,,	Flue.
Z	,,	,,	Draught aperture.
MSF	,,	,,	Millet stalk fence or brick wall built to direct draught to Z.

the stoking has to be constantly kept up. When the water boils the steam passes up through the spirit-laden grain, vaporising and carrying with it the spirit present to the curved bottom of the condenser, whence the condensed liquid trickles into the leaden gutter, and thence through the tube (T) to the receiver (R). When the apparatus is in full working order there is a constant flow of *samshu* (*shao chiu*), which continues usually about two hours. During this time the cold water in the condenser gets heated, is allowed to escape by the overflow pipe, and is repeatedly renewed. The distiller, who stands just behind the handle of the condenser, watches the flow of *samshu*, and he has two ways of telling the proportion of spirit coming over in the liquid. He interposes a small leaden flask in the way of the flow, and if the liquid in rushing in forms no froth on the top the proportion of spirit is large, if froth forms it is small; but the practical test is to ascertain by a dipper the quantity in the receiver. As the liquor comes over pretty hot some alcohol is lost, and a person standing by the still during distillation may easily be intoxicated by the strong fumes. The quality of the spirit is tested by adding water and watching the quantity of froth which forms when the mixture is shaken, and if one-fifth of its weight can be added to the liquor without considerable froth forming that may be considered "Proof Spirit". Rectification is unknown in the distilleries; but a much pleasanter tasted and stronger liquor may occasionally be procured in the medicine shops, where re-distillation on a small scale is practised.

The forced draught caused by the wall (MSF) and the narrow opening at X produces an intense heat, and the ashes of the millet stalks come out through Z in a fused mass resembling clinkers from a furnace.

In Chapter VIII. I stated that owing to the long distance which separates the producing from the populous centres, and

the consequent heavy overland freight, numerous distilleries are scattered about the former, and these consume large quantities of millet in the manufacture of *samshu*, which, being less bulky and more expensive than the grain, can be profitably conveyed to the seaboard for shipment. Even at the time of export this spirit is absurdly cheap, being valued at less than 1½d. per lb. in weight. In the distilleries it is put away in willow baskets lined with tough waterproof paper as well as in earthenware jars carefully stoppered with clay. This spirit finds a ready market throughout China, and is exported in large quantities both by steamer and junk, chiefly the latter, from Newchwang.

CHAPTER X

THE TRADE OF MANCHURIA

IN Chapters VII. and VIII. I have endeavoured to enumerate the various products of Manchuria, and I propose now to show how far these are utilised for trade, what the wants of Manchuria are, and the extent to which these wants are supplied.

The remarks already made on the subject of climate will have prepared the reader for the peculiar conditions under which the trade of these northern latitudes is conducted. With the exception of the extreme south of the Liao-tung Peninsula—Kuan-tung as it is called—the whole of Manchuria is ice-bound for at least four months of the year, from the middle of November to the middle of March in the south and from the middle of October to the beginning of May in the far north, when all water-borne traffic ceases. The closing and opening of the rivers may be a little earlier or later according to the severity or mildness of the season. At Newchwang, for example, the Liao River, if not actually blocked by the end of November, is dangerous to navigation owing to floating ice, and in the years 1898, 1899 and 1900 it broke up on the 2nd of April, 10th of March and 23rd of March respectively; in Central Manchuria the Sungari at Kirin closes about the middle of November (on the 15th in 1895) and opens at the beginning of April (on the 2nd in 1896); and the Amur in the extreme north closes in October and opens early in May. Virtually, therefore, navigation in these inland waters closes from four to six months out of the twelve, and all trade during these months has to be carried

by land or on the ice. In the centre and north, where there is a heavier snowfall than in the south, sledges are in common use both for passengers and goods; but the merchandise thus transported represents only a fractional part of the total winter traffic of the country. Carts are the railway carriages, trucks and vans of Manchuria—small covered carts with two or three animals for passengers and light valuable produce such as opium and silk, and large open carts with teams of from five to seven mules or ponies (mostly the latter number) for bringing the heavy and bulky products of the interior to the great depôts of trade on the banks of the rivers, there to await the opening of navigation in spring, and for conveying back into the interior the necessaries and luxuries of life, such as salt, sugar, Chinese produce generally and foreign manufactures. This trade, as I shall show hereafter, is immense, and it might be supposed that some care would be taken to keep the roads on which it has to be conducted in decent repair; but the absence of stone in the neighbourhood of the alluvial soil over which the great commercial highways run in Western Manchuria and Eastern Mongolia precludes that care being exercised even were it contemplated, and during the rainy season—July and August—the roads become quagmires, wherein carts and their teams, when they attempt the carriage of goods at that season, flounder for days and weeks. Later, these roads with their deep ruts are frozen solid, and, as caravan after caravan of heavily-laden carts rolls along, the ridges are powdered into the ruts, leaving, towards the end of the winter, the surface smooth and slippery, with here and there deep depressions—dangerous pitfalls, where the unwieldly carts are frequently upset.

The nature of the roads has led to the building of carts capable of withstanding the bumping and jolting to which they are constantly subjected. Elm and oak are the materials used in their construction, and the framework of the cart—I am

speaking now of the large open carts—rests, by means of beams of wood affixed to and under each side in the centre and lower half of which a semi-circular piece is removed, on a huge axle-tree joined to two wheels with iron tires more than an inch thick. These tires, about two inches wide, are made up of curved lengths of iron, nailed in a groove to the fellies of the wooden wheels, which revolve with the axle. To add to its strength pieces of iron are let into the axle, where the blocks under the framework rest upon it. A wheel has three spokes, one a massive beam and two smaller beams at right angles to and passing through it. The large spoke is clasped with iron bands, and the side of the wheel is studded with large iron rivets. On each side of the cart there is a low wooden rail extending backwards (not, however, to the tail), and over this rail and on the body of the cart produce is loaded to a considerable height, and of a weight of from two to three tons. But the load is always so well balanced that there is no pressure on the back of the pony in the short shafts. In front of this pony there are usually two rows, three abreast, of ponies, but more frequently mules, the row next the pony being attached to iron hooks on each side of the body of the cart by long hempen ropes or traces fixed to their collars, and the front row in a similar manner to the shafts[1].

The mules in each row are loosely joined to each other by ropes connecting their collars, but they have neither bits, bridles nor reins, being guided by the voice of the driver, who, perched on the top of the load in front, wields in both hands an enormous whip, long enough to cover the whole team.

[1] The following are the actual measurements of a cart :—

Length . . .	15 feet.	Distance between shafts	26½ inches.
Breadth . . .	47 inches.	Circumference of axle .	25 „
Length of rail . .	58 „	Diameter of wheel .	43 „
Height of rail . .	13½ „	Breadth of tire . .	2 „
Length of shafts . .	55½ „	Thickness of tire . .	1½ inch.

With it he can snip any animal which shows the least disposition to play the laggard.

Such are the roads and the means of transport for conveying the produce of the far interior of Manchuria and Eastern Mongolia to places of shipment on the great trade artery—the Liao River. Many thousands of carts come into the port of Newchwang (Ying-k'ou or Ying-kow) every winter; but as the season advances and the roads begin to soften they unload at such places as T'ien-chuang-t'ai, Hsin-min T'ing, T'ieh-ling Hsien and T'ung-chiang-tzŭ—the great depôts of trade in Southern Manchuria, where the goods are stored until the ice breaks up and the river opens in spring. When the waterways open overland traffic virtually ceases, and the many thousands of animals thus let loose are employed in tilling the fields. In spring, summer and autumn a forest of masts lines the north bank of the Liao opposite the town of Newchwang (Ying-k'ou), proclaiming that thousands of boats are bringing down the produce stored in the depôts mentioned above. Towards the beginning and middle of November they disappear into the interior, where they are drawn up and beached on the banks of the river till the ensuing spring. Some years ago it was estimated that 13,000 boats, varying in capacity from $7\frac{1}{7}$ to $14\frac{2}{7}$ tons, were engaged in this carrying trade, and that each boat made eight trips on an average during the season, bringing down for export beans, grain, tobacco, hemp and other produce, and taking back salt, old iron and general cargo. They are manned by crews of from three to five men, according to size. To-day, owing to the enormous development of trade in Manchuria during the last few years, it may be stated with perfect safety that they number not less than 20,000, and every year even the most unobservant eye cannot fail to detect the large admixture of new craft.

Having in previous chapters described the various products

of Manchuria, I proceed now to examine the extent to v
they enter into the trade of the three provinces. There c
no doubt that millet (*Horcus sorghum, L.*) is the principa
most valuable crop of Manchuria; but, being the staple fo
the people, the common feed of beasts of burden, and the
used by the distilleries in the manufacture of *samshu*, it is r
all consumed in the country itself, and what is not consun
an insignificant quantity as compared with the total outp
can be exported only under bond or Government pass to
parts of China. A small quantity is occasionally exporte
steamer to Northern China, where, as in Manchuria, it i
chief food grain of the population; but junks carry the bu
this export to Tientsin, Chefoo and other small ports o
coast of Chihli and Shantung, and a few years ago I estin
that at least 50,000 tons of Kao-liang (*Holcus sorghum, L.*
Hsiao-mi (*Setaria italica, Kth.*), of the value of about £18
(the latter grain is about £1 dearer per ton than the for
are thus conveyed every year. Recently, however, there
been a general advance in prices throughout Manchuria,
the above value is now undoubtedly too low.

The port of Newchwang, the only port in Manchuria s
open to foreign trade, is the chief outlet for the external
of the three provinces, and it is the only place at which rel
statistics of that trade are obtainable. These statistics, v
are collected and published by the Imperial Maritime or Fo
Customs, cover the trade in vessels of foreign type only, an
not include the native junk trade, which is carried on u
the supervision of the Native Custom-House. The latt
considerable, but no trustworthy figures are made publi
that, while the minutest details of the trade in foreign v
are forthcoming, only a rough estimate of the junk traf
Manchuria can be arrived at. I shall deal with this esti
later, and in the meantime the reader should bear in mind

the following figures, perfectly accurate as far as they go, refer to the great bulk of the trade only.

Very gloomy views were expressed in some quarters as to the commercial future of Manchuria, owing to the invasion and occupation of part of the Southern province by Japan, in consequence of the war between that country and China in 1894-95; but these views have been falsified by events, for Japan has become the principal market for Manchurian produce, and she is strenuously endeavouring, and with considerable success, to push her manufactures where she now buys so freely. But the distribution of exports and the origin of imports will be discussed hereafter, and I may merely state here that since the war the trade of Manchuria has actually trebled. In giving details of its commercial condition to-day I propose to institute a comparison between the two years 1898 and 1899, and as, owing to the fluctuations in exchange, volume, not value, is the true test of trade, I shall place side by side the quantities and the silver and gold values of the exports and imports through the port of Newchwang, the chief commercial channel of Manchuria, and I shall then refer to the other channels, and try to arrive at an estimate of the trade that passes through them. In this connection there is one point which I wish to emphasise, and it is this: in the returns of the Imperial Maritime Customs, to which I am indebted for the following figures, treasure, whether imported or exported, is always treated in a separate table and excluded from the lists of imports and exports; but treasure is as much an article of trade as silk or iron, and I shall introduce it in its proper place. Gold, for example, is extracted from Manchurian soil, and has as much right to a place in the table of exports as any other product of the country.

The chief export from Manchuria is beans and their products, bean-cake and bean-oil, and the following table of their export through Newchwang in foreign bottoms or, to be strictly

accurate, vessels of foreign type will illustrate better than verbal description the present condition of the trade in articles, and show, to a great extent, the measure of country's buying capacity—a measure which, happily for foreign manufacturer, is annually expanding as new areas being placed under cultivation and fresh markets found for splendid harvests.

EXPORT OF BEANS, BEAN-CAKE AND BEAN-OIL.

Produce.	Uses.	1898.			1899.	
		Quantity.	Value.		Quantity.	Value
		Tons.	Haikwan Taels.	£	Tons.	Haikwan Taels.
Beans—						
Yellow .	Beancake, Oil and Food	139,508	4,687,827	676,318	153,745	4,694,750
Green .		71,510	2,402,747	346,646	95,649	3,306,172
Black .		20,806	579,346	83,583	21,076	602,492
Green, small	Vermicelli	4,435	178,581	25,764	3,328	140,436
White .	Food	14,785	548,243	79,095	6,241	216,153
Red .		182	6,870	991	389	14,232
Bean-cake .	Fertiliser & Animal Feed	219,989	5,828,715	840,913	260,798	6,711,364
Bean-oil .	Food and Light	6,448	648,312	93,532	9,512	1,000,193
Total Export . .		477,663	14,880,641	2,146,842	550,738	16,685,792

Now, what I want to arrive at is an estimate of the production of pulse in Manchuria, and the above table th some light on the subject. A simple addition sum shows 280,428 tons of beans were passed through the Imperial Mari Customs at Newchwang in 1899, and to this has to be a the quantity of beans represented by 260,798 tons of bean- The result of a series of experiments made by me from tir time proves that the average yield of oil is nine per cent., is, one hundred tons of beans are required to produce nine of oil, so that 286,591 tons of beans must have been treat

obtain the above export of bean-cake, and this added to the actual bean export gives a total of 567,019 tons. I may be met by the statement that the total tonnage of the 582 vessels of foreign type which cleared outwards from Newchwang in 1899 was only 508,209 tons, and, to disarm such criticism, it is necessary to mention that register tonnage and dead weight carrying capacity are very different, for a steamer of a thousand tons measurement may, and frequently does, carry three thousand tons weight of cargo. So far the figures quoted are unimpeachable; but when we come to estimate the quantity of beans and bean-cake carried away in junks from Newchwang and other places on the Manchurian seaboard, and the actual consumption in Manchuria itself, only a rough approximation can be arrived at. The result of enquiries made in 1899 showed that some 1,200 junks of various sizes left Newchwang in that year with cargoes for China Proper, and, if sixty tons be taken as the average dead weight capacity of these junks, we have a total of 72,000 tons. But many of these junks are exclusively employed in carrying millet to Tientsin and places on the seaboard of the province of Shantung, and, in all probability, 30,000 tons are thus taken up, leaving a balance of 42,000 tons for other general cargo, of which it may be assumed that two-thirds is made up of beans and bean-cake. This would represent 30,000 tons of beans to be added to the figures given above, making practically a total of 600,000 tons. Now, although the statistics of Native Custom Houses are very unreliable, I have been assured that three-fifths of the Customs revenue derived from cargoes of native vessels visiting the seaboard of Manchuria is derived from the port of Newchwang—in other words, that Newchwang does three-fifths of the seaboard junk trade. On this basis, therefore, and assuming that two-thirds of the cargo consists of beans and bean-cake, the export by junk from other places on the seaboard should be only some 12,000 tons. And

the consumption by Manchuria of these special products of her own is small, for, as I have already explained, millet is the staple food of the people as well as of animals, and the agriculturist utilises his farm manure on his fields and allows the more expensive fertiliser to go to market elsewhere. Being absolutely without data I prefer to hazard no figures as to this consumption, and all I can confidently state is that over 600,000 tons of beans are annually produced in Manchuria. What are the markets for this produce? A few years ago the consumption of pulse and bean-cake was practically confined to the southern provinces of China (through the ports of Swatow, Amoy and Canton), where mills were erected for extracting the oil from the beans, and the bean-cake was used for fertilising the sugar plantations. Since the Chino-Japanese War however, the Island Empire, having realised during her occupation of the Liao-tung Peninsula the value of Manchurian produce, has become a gigantic consumer, and in 1899 her purchases exceeded the total export to Southern China. Manchurian beans can now be laid down in Japan at less than it costs to produce the same varieties in that country, where pulse enters largely into the diet of the population, and bean-cake is replacing fish manure, which of recent years has become scarce and dear owing to the dearth of herrings along the Japanese coast. Hong-Kong also appears as an importer on a much smaller scale; but that island is merely a distributer, not a consumer, the balance of the import, after supplying parts of the Canton province, going to the sugar-fields of Java. Nearly all the bean-oil exported through Newchwang is consumed in China. I have stated above that 286,591 tons of beans must have been treated to produce the 260,798 tons of bean-cake exported in vessels of foreign type in 1899, while the yield of oil resulting from that treatment must have amounted to 25,793 tons. But only 9,512 tons appear in the returns of the Imperial

aritime Customs, showing that, after satisfying local require-
ents, a large quantity was exported by junk during the year.
he explanation is simple. Owing to the rough roads, bean-oil
om the interior of Manchuria is brought in large strong
atertight wooden boxes lined with paper to the port of ship-
ent, where the boxes are broken up and the contents, like the
il extracted in Newchwang itself, poured for export into large
rittle jar- or carafe-shaped wicker baskets lined inside and
utside with layers of waterproof paper. These baskets will not
ear the rough handling incidental to shipping on, transhipping
, and discharging from steamers, and to avoid this the owner
refers to send his oil by junk direct to its destination on the
ast of China.

I have dwelt at considerable length on the subject of beans
nd their products; but I am sure the reader will exonerate me
om discursiveness on learning that of the sum of £3,103,000,
hich represents the total value of produce exported through
ewchwang in vessels of foreign type in 1899, their aggregate
lue amounted to £2,511,559. They are, in a word, the
ealth of Manchuria.

Prior to 1897 gold ranked second in value of the products
f Manchuria, but silk has now usurped that place. In Chapter
III. I treated silk as one of the special industries of the country,
nd I have only to add that, as the eastern hilly part of Fêng-
ien is being taken up by settlers, greater attention is being
aid to oak cultivation and the production of silk. The follow-
g table, which I have drawn up from the Customs Returns for
898 and 1899, shows the nature, extent and value of the export
y steamer from Newchwang :—

EXPORT OF SILK, 1898-99.

Silk.	1898.			1899.		
	Weight.	Value.		Weight.	Value.	
	Cwt.	Haikwan Taels.	£	Cwt.	Haikwan Taels.	£
Raw, wild .	9,341·67	1,255,547	181,139	16,629·76	2,362,625	355,624
Refuse . .	4,691·67	118,234	17,057	7,904·17	212,711	32,028
Cocoons . .	—	—	—	22·62	481	72
Piece Goods .	1·19	354	51	—	—	—
Pongees . .	4·76	782	113	19·05	4,671	703
Raw, white .	—	—	—	10·71	3,178	478
„ yellow .	—	—	—	10·71	3,206	483
Total Export	14,039·29	1,374,917	198,360	24,597·02	2,586,872	389,378

It will be observed from the above table that very little manufactured silk is exported, and, indeed, little is manufactured, the industry been confined for the most part to reeling the raw silk for market. Although the port of Newchwang is an important outlet for this trade, owing to its proximity to the silk centres of Hai-ch'êng, Hsiu-yen and Kai-p'ing, yet there are numerous smaller ports to the south and south-west, notably Ta-ku-shan, whence the silk is carried by junks, Chinese steamers and even Chinese gunboats to the mainland of China, principally to the province of Shantung. Previous to the Russian occupation of Kuan-tung there was a considerable export through Port Arthur. The above figures, therefore, do not profess to represent the total export of silk from Manchuria; but the chances are that they account for the great bulk of the trade.

In dealing with the export of gold from Manchuria I must ask my reader to bear in mind what I said in Chapter VIII. regarding the production of the precious metal and the doubts there expressed as to its place of origin. It will be seen from the accompanying table that the greater part of the export from Newchwang which these figures represent consists of bars

These weigh, as a rule, ten Chinese ounces. They occupy little space, and, as the freight on treasure is comparatively heavy, they are easily carried on the person or in the baggage of a passenger, and it is only in the case of large consignments that the owner takes advantage of a steamer's treasure-room and insurance against loss. Again, these bars are bought and hoarded by the wealthy in Manchuria in preference to accumulating silver, which is bulky and less easily concealed, while a considerable quantity is annually used in the manufacture of jewellery, the purchase of which is practically another way of investing spare capital. From the above the reader will readily understand how impossible it is to arrive at an estimate of the annual output of the Manchurian gold mines, and the quantities reported to the Imperial Maritime Customs at Newchwang in 1898-99 given below must be looked upon as only a portion of the total production. In both years the whole of this gold, with the exception of coins of the value of £226 sent to Chefoo in 1899, was exported to Shanghai.

EXPORT OF GOLD FROM MANCHURIA THROUGH NEWCHWANG, 1898-1899.

	1898.		1899.	
	Value.		Value.	
	Haikwan Taels.	£	Haikwan Taels.	£
Bars	941,020	135,762	1,056,932	159,090
Dust	1,800	260	160,000	24,083
Shoes	92,690	13,372	135,600	20,411
Leaf	—	—	1,038	156
Coins	—	—	3,493	526
Total Export . .	1,035,510	149,394	1,357,063	204,266

There is a very large annual export of gold from the port of Tientsin, and it is most probable that a part of this export is derived from Manchuria; but, in the absence of any authoritative statistics, it is impossible to say definitely whence this gold

is derived. In 1898 it amounted in value to Haikwan taels 3,973,602 or £573,275, and consisted solely of bars. The figures for 1899 have not yet come to hand.

Although, as stated in Chapter VIII., silver exists in Manchuria, it is not worked, and does not, therefore, form a product of the country. There is, however, a considerable annual export in the shape of sycee or lump silver and dollars. In 1898 it was sent away from Newchwang to the value of Haikwan taels 465,812 or £67,203, of which a sum of Haikwan taels 19,085 or £2,753 was exported to foreign countries, the balance going to Chinese ports, notably Shanghai and Chefoo. Over 92 per cent. of the total consisted of sycee, and over 7 per cent. of dollars. In 1899 the total export is given as of the value of Haikwan taels 3,313,005 or £498,676; but as the sum of Haikwan taels 147,000 or £22,127 was sent from Newchwang to Port Arthur, it was merely a movement from one part of Manchuria to another, and I omit it as an export. The balance of Haikwan taels 3,166,005 or £476,549, therefore, represents the true export of silver from Manchuria through Newchwang in 1899. It was made up of bars (Haikwan taels 40,000 or £6,021), sycee (Haikwan taels 1,004,900 or £151,258) and dollars (Haikwan taels 28,408 or £4,276)—a total of £161,555 to foreign countries; and sycee (Haikwan taels 691,010 or £104,011) and dollars (Haikwan taels 1,401,687 or £210,983)—a total of £314,994 to the Chinese ports of Shanghai, Tientsin, Chefoo and Canton. In this connection I may mention that within the last three years mints have been established at Kirin and Moukden, where silver dollar, fifty, twenty, ten and five cent pieces are struck. In 1898 a consignment of 10,000 Kirin dollars was shipped to Shanghai to be placed upon the Chinese market, but they were rejected and returned. These coins circulate freely in Manchuria, and the Russo-Chinese Bank borrowed for a time the

use of the Kirin mint to facilitate payments to the workmen on the Manchurian or Chinese Eastern Railway. The work at these mints is very intermittent.

I have explained elsewhere why it is that Corean ginseng has within recent years declined as an export through Manchuria, and in 1898 and 1899 it disappeared from the Customs Returns. The native article, however, still forms a valuable export, as will be seen from the following table :—

EXPORT OF GINSENG FROM MANCHURIA THROUGH NEWCHWANG, 1898-99.

Variety.	1898.			1899.		
	Quantity.	Value.		Quantity.	Value.	
	Lb.	Haikwan Taels.	£	Lb.	Haikwan Taels.	£
Native Ginseng .	255,067	182,166	26,281	305,867	176,732	26,602
Beard . . .	59,067	26,341	3,800	70,667	25,034	3,768
Roots and Cuttings	5,733	2,146	310	12,533	4,418	665
Wild . . .	117	7,289	1,052	259	16,109	2,425
Total Export	319,984	217,942	31,443	389,326	222,293	33,460

Moukden is the great skin and fur market of Manchuria. It contains numerous factories for dressing the raw skins and preparing them for export, and it supplies a great part of the finer furs which appear in the Tientsin Customs export list. Manchurian furs have a large sale in Peking and in North China generally ; but as these goods are carried overland from Moukden to Tientsin there is no means of arriving at the annual volume and value of the trade. The export through the port of Newchwang is also very considerable, as the following table shows :—

EXPORT OF SKINS AND FURS FROM MANCHURIA THROUG
NEWCHWANG, 1898-1899.

Variety.	1898.			1899.		
	Number.	Value.		Number.	Value.	
	Pieces.	Haikwan Taels.	£	Pieces.	Haikwan Taels.	£
Skin (fur) clothing .	14,439	30,322	4,375	12,634	20,205	3
„ mats, dog .	60,010	33,861	4,885	44,479	33,836	5
„ „ goat .	6,165	3,796	548	15,360	10,295	1
„ „ sundry .	961	1,660	239	50	100	
„ rugs, dog . .	42,980	35,320	5,096	70,858	47,686	7
„ „ goat . .	3,290	4,407	636	6,913	6,168	
„ „ sundry .	664	846	122	509	1,118	
Skins (furs)—						
Fox tails . .	10,321	507	73	20,630	1,032	
Goat (raw) . .	26,245	3,210	463	50,483	6,237	
Lamb . . .	3,267	995	144	4,869	1,461	
Hare . . .	3,160	379	55	2,239	269	
Raccoon . .	1,910	1,146	165	—	—	
Sable . . .	124	868	125	413	2,309	
Sheep . . .	4,750	957	138	220	126	
Squirrel . .	10,149	2,538	366	2,774	694	
Tiger . . .	14	355	51	—	—	
Weasel . .	49,201	10,561	1,524	72,140	15,850	
Various . .	38,851	3,233	466	22,902	5,984	
Total Export .	276,501	134,961	19,471	327,473	153,270	2

There should be added to the above table, as an exp
1899, 2,800 lb. of squirrel tails of the value of Haikwan
8,135 or £1,224.

The above are the main exports from Manchuria th
Newchwang, and the following table contains the rem
products, some of which are of considerable value :—

MINOR EXPORTS FROM MANCHURIA THROUGH NEWCHWANG, 1898-99.

Articles.	1898.			1899.		
	Quantity.	Value.		Quantity.	Value.	
		Haikwan Taels.	£		Haikwan Taels.	£
Bags, Hemp . . Pieces.	88,459	2,861	413	80,130	2,889	435
„ Straw . . „	439,130	5,646	815	353,000	4,578	689
Bones, Cow & Refuse Cwt.	14,563	9,905	1,429	13,536	9,277	1,396
„ Tiger . . „	17	924	133	—	—	—
Bristles . . . Lb.	94,933	31,732	4,578	110,400	40,166	6,046
Clams, Dried . . Cwt.	2,387	7,653	1,104	—	—	—
Crabs, Salted . . „	1,772	4,059	586	—	—	—
Felt . . . . Pieces.	3,920	1,307	189	5,014	1,459	220
Fish, Dried & Salted Cwt.	5,412	13,721	1,979	7,670	18,781	2,827
Glue, Deer-horn, Imitation . . . Lb.	12,533	3,041	439	13,333	3,477	523
Ground-nuts . . Cwt.	3,149	6,177	891	10,194	16,724	2,517
Hair, Horse, Manes . Lb.	35,867	10,673	1,540	12,400	1,887	284
„ „ Tails . „	37,600	10,859	1,567	43,067	11,144	1,677
„ Raccoon . . „	4,933	4,421	638	8,000	8,271	1,245
Hemp . . . Cwt.	1,538	5,027	725	1,914	9,621	1,448
Hides, Cow & Buffalo „	542	8,193	1,182	—	—	—
Horns, Deer . . „	181	5,326	768	63	2,111	318
„ „ Young . Pairs.	1,775	44,874	6,474	1,712	43,177	6,499
„ „ Old . Cwt.	54	1,788	258	67	2,224	335
Jadestone . . . „	4,279	5,751	830	2,670	3,598	542
Job's Tears . . „	8,521	21,923	3,163	4,850	14,010	2,109
Leather, Green . Lb.	1,733	1,255	181	1,333	1,000	151
Liquorice . . . Cwt.	1,540	5,346	771	2,970	9,985	1,503
Mats . . . Pieces.	112,905	7,136	1,030	119,827	7,729	1,163
Medicines . . Value.	—	148,497	21,424	—	114,548	17,242
Millet (Small) . . Cwt.	35,725	39,991	5,770	25,104	41,111	6,188
Mushrooms . . Lb.	2,666	1,125	162	22,000	6,459	972
Musk . . . Oz.	2,119	11,918	1,719	1,479	8,318	1,252
Oil, Castor . . Cwt.	8,101	47,639	6,873	6,337	32,118	4,834
Oil, Refuse . . „	1,967	1,270	183	—	—	—
Opium, Native . . Lb.	4	17	2	—	—	—
Pears, Fresh . . Cwt.	7,886	10,023	1,446	3,431	5,855	881
Potatoes . . . „	6,305	2,585	373	2,509	1,047	158
Prawns and Shrimps, Dried . . . „	19,109	56,555	8,159	30,002	85,522	12,873
Rugs, Felt . . Pieces.	8,685	2,932	423	—	—	—
Samshu . . . Cwt.	17,151	65,663	9,473	19,829	89,003	13,397
Seed, Apricot . . „	1,272	6,674	963	473	2,891	435
„ Pine . . „	—	—	—	544	1,230	185
„ Melon . . „	20,748	70,180	10,125	38,006	134,679	20,272
„ Sesamum . „	10,582	33,863	4,885	37,786	106,046	15,962
Sinews, Deer, Cow and Buffalo . . „	977	14,849	2,142	889	17,979	2,706
Sundries, unclassed . Value.	—	33,538	4,839	—	25,931	3,903
Tobacco, Leaf . . Cwt.	6,877	39,706	5,728	4,739	32,842	4,943
Vermicelli and Macaroni . . . „	6,856	28,796	4,154	8,900	40,283	6,064
Wax, Yellow . . Lb.	9,200	2,400	346	5,333	1,419	214
Wheat . . . Cwt.	1,190	2,000	289	—	—	—
	—	839,819	121,161	—	959,389	144,408

The above constituted the export trade of Manchuria, in vessels of foreign type, through the port of Newchwang during the years 1898-99, and it will be convenient for the reader interested in commercial statistics if I give here a summary of that trade.

SUMMARY OF THE EXPORT TRADE OF MANCHURIA THROUGH NEWCHWANG, 1898-1899.

Exports.	1898. Value.		1899. Value.	
	Haikwan Taels.	£	Haikwan Taels.	£
Beans, Bean-cake and Bean-oil	14,880,641	2,146,842	16,685,792	2,511,[illegible]
Silk	1,374,917	198,360	2,586,872	389,[illegible]
Gold	1,035,510	149,394	1,357,063	204,[illegible]
Silver	465,812	67,203	3,166,005	476,[illegible]
Ginseng	217,942	31,443	222,293	33,[illegible]
Skins and Furs	134,961	19,471	161,405	24,[illegible]
Miscellaneous	839,819	121,161	959,389	144,[illegible]
Total	18,949,602	2,733,894	25,138,819	3,783,[illegible]

It would be interesting to trace the goods, of which the above table represents the values, to their ultimate destinations; but, as transhipment to foreign countries and Chinese ports is effected at such places as Shanghai and Hong-Kong, where their identity is lost sight of, it is possible to give here only the result of the direct shipments from the port—in other words, to record the countries and Chinese ports to which the goods are consigned on shipment at Newchwang. That, then, is the object of the following table:—

ISTRIBUTION OF MANCHURIAN EXPORTS THROUGH THE PORT OF NEWCHWANG, 1898-99.

Country or Port.	1898. Value.		1899. Value.	
	Haikwan Taels.	£	Haikwan Taels.	£
ɛat Britain . . .	5,415	781	146	22
ssian Manchuria .	1,601	231	3,917	589
rea	58,524	8,443	8,669	1,305
ɔan	6,684,732	964,412	8,091,320	1,217,912
ŋg-Kong . . .	432,368	62,378	772,792	116,321
ıer Foreign Countries	15,270[1]	2,203	887,700[1]	133,617
rt Arthur . . .	4,280[2]	617	3,694[2]	556
ɨntsin . . .	176,713	25,495	202,162	30,430
efoo	565,979	81,654	728,942	109,721
ang	—	—	197	30
nkow	38,253	5,519	21,613	3,253
ıkiang . . .	1,094	158	730	110
ınghai . . .	3,498,488	504,730	6,549,577	985,848
ıgpo	8,576	1,237	12,114	1,823
ɔchow . . .	2,405	347	1,010	152
ıoy	1,632,617	235,539	1,807,842	272,118
atow	3,289,012	474,508	3,356,341	505,199
ıton	2,534,275	365,622	2,690,053	404,909
Total . . .	18,949,602	2,733,874	25,138,819	3,783,915

With two Customs Administrations, one of which publishes ıble trade statistics, while the other gives no returns what-', and with a number of small, little-known ports on the sea-rd visited only by junks, it is impossible to present a perfect ınce-sheet of the sea-borne trade of Manchuria; but, as with ɔrts, so with imports, the great bulk of the trade passes ɔugh the port of Newchwang, and I shall now endeavour to ıish a summary of the purchases which Manchuria makes ı the proceeds of her exports. The following are the figures 1898-99:—

[1] These figures represent treasure only.

[2] This might be excluded from the external trade of Manchuria, as it consists e movement of goods from one part of the country to another for local ımption and not for export. It is, properly speaking, part of the home of Manchuria.

SUMMARY OF IMPORTS INTO MANCHURIA THROUGH THE PORT OF NEWCHWANG, 1898-1899.

	1898.		1899.	
Foreign Goods—	Haikwan Taels.	£	Haikwan Taels.	£
Indian Opium	62,311	8,989	729,929	109,4
Cottons	7,698,392	1,110,653	13,564,962	2,041,4
Woollens	210,630	30,388	338,204	50,4
Miscellaneous Piece Goods	2,307	333	42,432	6,3
Metals	627,894	90,587	800,183	120,4
Sundries	1,975,937	285,070	6,300,220	948,3
Treasure	6,396,905	922,887	9,684,414	1,457,7
Native Goods	4,415,564	637,037	5,965,942	897,4
Total	21,389,940	3,085,944	37,426,286	5,633,4

In the early years of the port of Newchwang one of principal imports was Indian opium; but, as I have explai elsewhere, Manchuria now grows sufficient not only to sup her own wants, but also to admit of an export to the north provinces of China. This surplus is carried overland by c and does not appear in any Customs Returns. The imp of Indian opium in 1898, amounting as it did to 12,257 lb., comparatively large, the quantities imported in 1896 and 1 being 4,284 lb. and 3,731 lb. respectively. But a failure of rainfall in the poppy-growing districts in 1898-99 caused shortage in the harvest, and 131,488 lb. of Indian and 44,4 lb. of native opium from Ssŭ-ch'uan and other provinces w brought in during 1899 to make good the deficiency. T Indian opium of late years imported into Manchuria may described as the luxury of the rich.

There is, however, one branch of the import trade of greater importance to India than opium. In 1898 Ind cotton yarn amounting to cwt. 163,539, of the value Haikwan taels 2,807,573 (£405,051), was imported, and 1899 the import rose to cwt. 250,432, valued at Haik taels 4,793,094 (£721,460). Add to this Haikwan t

8,218 (£7,258)—the value of T. cloths, drills and sheetings f Indian manufacture—and we find that India accounts for laikwan taels 4,841,312 (£728,718) of the total value (Haik-an taels 13,564,962 or £2,041,809) of cottons imported into anchuria through Newchwang in 1899. How long India will aintain her supremacy in yarn it is difficult to say, for apan, although her present contribution to this article of trade much smaller, has recently shown a larger proportionate crease. In 1898 her contribution was cwt. 17,075, and in 899 it was cwt. 50,515. But there is a danger both to India nd to Japan in the Chinese Steam Cotton Mills, which, if he difficulties they have to contend with in purchasing raw otton can be overcome, are bound to become powerful rivals. r 1898 they sent cwt. 12,472, and in 1899 cwt. 17,311 to lewchwang. While England still maintains her supremacy as gards shirtings, she has been all but driven from the field in ch articles as sheetings, drills and jeans by America, which sily holds the leading place in the cotton goods trade of anchuria. The following table shows at a glance the present ondition of the trade in these three classes of goods :—

Cottons.	1898.		1899.	
	Pieces.	Value.	Pieces.	Value.
		£		£
Sheetings, American . .	625,982	310,789	1,101,765	588,674
,, Indian . . .	9,730	3,930	14,050	6,188
,, English . .	15,330	7,520	11,911	6,159
,, Japanese . .	260	112	7,810	3,527
,, Chinese . .	—	—	34,900	16,223
Drills, American . . .	367,916	183,291	584,877	304,601
,, English . . .	1,650	738	3,870	1,836
,, Indian . . .	1,695	677	630	284
,, Dutch . . .	—	—	480	210
,, Japanese . . .	—	—	395	172
,, Chinese . . .	—	—	450	208
Jeans, American . . .	3,380	1,430	29,630	13,380
,, English . . .	13,560	5,145	9,250	3,660
,, Dutch . . .	—	—	1,680	632

It will be seen from the above that the total number of American sheetings, drills and jeans rose from 997,278 pieces in 1898 to 1,625,272 pieces in 1899, and that the English declined from 30,540 to 25,031, and I may be allowed to quote here an extract from my Report on the Trade of Newchwang for 1898: "In other words, the chief markets for American manufactured cottons in China are the northern provinces and Manchuria. Why is this so, and why is it that American cottons are superseding English goods in these markets? The answer is that the heavier makes of goods are in greatest demand in the colder north, that America is our competitor in these makes, and that these American goods are superior to and cheaper than English. I am told that the proof of the superiority of the American goods is in the washing: when English goods are washed and the heavy sizing removed they are very inferior to the American article when similarly treated. America is at present a successful rival in the heavier manufactured cottons, and there is nothing to prevent her from entering the lists against us in the higher grades. The setting up of machinery for the purpose is simply a question of time, and if we are to regain the ground which we have already lost, and maintain what is left to us, we must manufacture goods equal to and as cheap as those of our rival." It has been officially denied that, class for class, American cotton goods are cheaper than English; but I am prepared to stand by the market quotations in Manchuria, and by the assurances of an American merchant, through whose hands the greater part of the piece goods trade of Manchuria passes. The difference—a few cents—may not be very great; but it is sufficient to turn the scale in the eyes of the Chinese merchant and consumer in favour of the American goods.

It might naturally be supposed that in the severe climate of Manchuria woollen goods would be in great demand for clothing

during the winter months. With the exception, however, of materials for military uniforms and female underwear, there is little demand for woollens. The inhabitants of Manchuria prefer to array themselves in winter in sheep-skins and other furs, which are plentiful, cheap and warmer and more durable than woollen fabrics, or in wadded cotton clothes.

I have already described the cart by which the great overland traffic is transported, and stated that the wheels are bound with massive iron tires to withstand the rough roads of the country. When one considers the many thousands of carts engaged in this transport, that each cart is drawn by a team of some seven animals, that the country is gradually being opened up to agriculture, and that iron mines are as yet little exploited, it is not surprising that there is a large demand for foreign iron to be used in the manufacture of tires, horse-shoes, nails and farm implements. Old iron of every variety and shape, from boiler plates to railway spikes and horse-shoes, is, owing to its cheapness, preferred by the local blacksmiths, and 12,631 tons, of the value of Haikwan taels 322,158 or £48,491, were imported in 1899. But iron in the shape of nail-rod, bar, hoop, sheets and plates, wire, pig and kentledge, nails, anchors and chains, screws and iron-ware, of the value of Haikwan taels 141,090 or £21,237, was also imported in 1899, and this added to the value of the old iron gives a sum of £69,728, or more than half the total value of all the metals imported during the year. The other principal metal imports were pig lead, copper slabs from Japan, steel bars, spelter and German silver.

The value of sundries or miscellaneous goods imported in 1898 and 1899 was much above the average of previous years, and the increase was due in the main to plant and materials required for the construction and working of the two railways now being built in Manchuria. These railways, of which I have already spoken, are the Russian or Chinese Eastern Railway,

which will connect I Arthur with lovo on the Tr
Baikal section of the Railway, and the Imperial Rail
of North China, whi n connects Peking and Tientsin
Newchwang, and ended from Kou-pang-tzŭ, on
Shan-hai-kuan—Newchwa section, to Hsin-min-t'un, or,
is kno officially, T'ing, because it is the sea
a T'i or Inde -Prefect. In 1898 and 1899 t
n ports e alued at Haikwan taels 1,975
or ,070, Hail taels 6,300,220 or £948,31
which t su £ 0 and £504,519 are respectivel
down t of l requirements; but there were o
items, ch ce it, wl , though not classed as plant
materials, e undou lly imported for railway purposes.
is unnec y f me to nerate and comment upon all t
sundr th ish further information regar
them will find full n t e Returns of the Imperial Mari
Customs, and I only d that the most prominent art
under this head c , aniline dyes, flour, machinery, mat
kerosene oil (princi lly A erican), paper, seaweed, sugar
wine.

As with sundries, so with treasure. The railways hav
account for a very large increase in the import of silver, for
price of land, the salaries of engineers and officials, and
wages of artisans, military guards and coolies had all to be
by treasure. Of the total sum of Haikwan taels 9,684,41
£1,457,706, imported in 1899, probably more than one mi
pounds sterling were absorbed by the railways, for previou
the advent of the latter a sum of Haikwan taels 3,000,000
considered a very large annual import through Newchw
Of the total import, which consisted of dollars, sycee and
over nine million Haikwan taels came from Shanghai.

Not only is Manchuria even now a large consumer of for
goods, but she is also a fair and increasing buyer of Chi

roduce and manufactures. Her purchases of the latter increased from Haikwan taels 4,415,564 or £637,037 in 1898 to Haikwan taels 5,965,942 or £897,998 in 1899. The main rticles to which she directed her attention, in addition to the ottons and yarn mentioned above, were brass buttons and brass-are, cloth, coal, raw cotton, medicines, wood oil, native opium ot likely to be a regular demand), paper, rice, silk piece goods, ugar, tea, prepared tobacco, white wax and wheat.

The flags and tonnage engaged in the carrying of the above rade in 1898-99 were the following:—

Flag.	1898.						1899.					
	Sailing.		Steam.		Total.		Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
British	12	6,523	156	154,806	168	161,329	12	6,862	173	178,135	185	184,997
German	2	894	52	43,006	54	43,900	2	894	47	41,037	49	41,931
French	—	—	1	509	1	509	—	—	—	—	—	—
Dutch	—	—	3	2,466	3	2,466	—	—	—	—	—	—
Danish	—	—	2	1,018	2	1,018	—	—	1	2,489	1	2,489
Swedish and Norwegian	—	—	43	32,472	43	32,472	—	—	23	20,274	23	20,274
Russian	—	—	4	1,726	4	1,726	—	—	13	8,137	13	8,137
Japanese	—	—	122	100,956	122	100,956	4	3,432	192	169,119	196	172,551
American	4	2,497	—	—	4	2,497	2	1,221	1	887	3	2,103
Chinese	—	—	85	67,012	85	67,012	2	339	110	70,383	112	70,722
Total	18	9,914	468	403,971	486	413,885	22	12,748	560	490,461	582	503,209

This table represents the number and tonnage of vessels of oreign type which visited the port of Newchwang during the bove years; but, as all these vessels likewise cleared, the above umbers and tonnage should be doubled, that is to say, 972 nd 1,164 vessels of 827,770 and 1,006,418 tons were engaged n the import and export trade of Newchwang during the years 1898 and 1899 respectively.

These steamers also brought to Newchwang 66,874 Chinese

passengers, principally from Chefoo and Tientsin, for railway and agricultural purposes, and carried away 40,488.

The total revenue collected by the Imperial Maritime Customs on the goods carried in these vessels in 1899 was Haikwan taels 928,739 (£139,794) against Haikwan taels 634,237 (£91,502) in 1898, and had it not been for the outbreak of bubonic plague in Newchwang last summer, of which I have already spoken, both the trade and revenue of 1899 would have been very much greater.

Up to the present in discussing the trade of Manchuria I have been handling well-authenticated figures; but when we come to consider the junk trade of Newchwang and of the Manchurian seaboard, and try to arrive at an estimate of its value, we are met with the absence of reliable statistics, or, indeed, of statistics of any kind. The Commissioner of Customs at Newchwang, in his Trade Report for 1899, says: "Newchwang is one of the ports where a large junk trade still flourishes. No statistics of the trade exist, but rough estimates may be made. Inquiries in this direction show that about 1,200 junks from other provinces in China arrived during the year, and that the value of the cargoes brought and taken away by them amounted to not far short of 20,000,000 of taels." A similar attempt was made to estimate the value of the junk trade at Newchwang in 1891, when Mr. A. R. Agassiz,[1] of the Imperial Maritime Customs, computed that 1,662 junks, of a capacity of 77,805 tons, left the port for Tientsin, the Shantung province, Shanghai, Ningpo, Foochow and Amoy during that year. This makes the average capacity of these junks less than fifty tons. If we apply this capacity to the 1,200 junks which visited Newchwang in 1899 we have a total junk tonnage inward and outward of 120,000 tons, and if we

[1] *The Geographical Journal* for December, 1894.

divide the estimated value of their cargoes by this tonnage we arrive at a value of over 160 Haikwan taels per ton. But nearly all valuable cargo is carried by steamer, and an examination of the Customs Returns will show that the average value of general cargo amounts to between thirty and forty Haikwan taels per ton. It may be said, however, that the estimated junk tonnage is far too low; but if we divide the 20,000,000 taels by 40—a high value per ton for general cargo—we find that the 2,400 junks (inwards and outwards) must have had a total carrying capacity of 500,000, or an average of over 200 tons per junk—which is manifestly too high. No; I consider that even ten millions of Haikwan taels are a very liberal estimate of the value of the junk traffic through Newchwang, and that twenty million taels are an ample allowance, not only for Newchwang, but also for the whole of the Manchurian seaboard, with the exception, perhaps, of the great and very valuable lumber trade at Ta-tung-k'ou, near the mouth of the Ya-lu River. I have already mentioned the export trade in furs and opium from Manchuria to the northern provinces of China, and given the causes of the decline in the frontier trade with Corea; but no statistics of either trade are available. In the northern province of Hei-lung-chiang from 80,000 to 100,000 head of cattle are reported to find their way across the Amur every year from Aigun and Helampo to Blagoveschensk in the Russian province of the Amur, and there is in the north-west a frontier trade across the Argun with the Trans-Baikal province; but, with the exception of firewood for the use of steamers, there is practically no sign of trade across the Amur from Blagoveschensk to the junction of the Shilka and Argun rivers. With the exception of the few gold-mining camps on this section of the river, the Manchurian bank of the Amur is wild and devoid of population. The chief trade, however, of Manchuria with Russia is between the Kirin and Primorsk provinces. From

the valleys of the Sungari, the Nonni t e Hu-lan rives large quantities of wheat are shipped to Habarovsk, the seat of the Military Governor-General of the Trans-Baikal, Amur and Primorsk provinces, where it is ground into flour at the numerous windmills dotted round the town. When I passed through Habarovsk in May I was told that a steam flour mill was soon to be erected for the treatment of the large wheat import, and when one considers the extent to which bread enters into the Russian diet the importance of Kirin wheat to these Russian provinces where agriculture is still in a very backward condition is invaluable. In addition to this wheat trade the Chinese Eastern Railway Company have a fleet of fifteen tugs and three passenger steamers engaged in towing barges of railway plant and materials up the Sungari from Iman and Habarovsk to Harbin, the junction of the Port Arthur and Vladivostock Manchurian lines.

Such is a general review of the export and import trade of Manchuria, sometimes exact and sometimes vague in details, and, although it may be considered presumptuous on my part to give an estimate of its value, I cannot refrain from hazarding the conjecture that we are face to face with a trade whose annual value does not fall short of fifteen million pounds sterling.

APPENDIX I

METEOROLOGICAL OBSERVATIONS RECORDED AT NEWCHWANG DURING THE YEAR FROM 7TH SEPTEMBER, 1896, TO 6TH SEPTEMBER, 1897

SEPTEMBER, 1896.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
7	29	64	29	72	78	64·5	72	67	70	64	N.N.W.	—	N.E.	—	·37	
8	29	74	29	74	78·5	64·5	73	68	70·5	64·5	N.E.	—	N.E.	—	—	
9	29	79	29	74	79	64·5	70·5	63	67·5	63·5	N.E.	—	N.E.	—	—	
10	29	69	29	64	76	64	68	64	66·5	64	N.E.	—	S.E.	—	·12	
11	29	49	29	35	74	64	67	65	65	62·5	N.E.	—	S.E.	—	—	
12	29	42	29	47	74	71	65	60	66	61	N.	—	N.W.	—	1·10	
13	29	50	29	60	70·5	60	67	60	64	59	N.W.	—	S.W.	—	—	P.M. showery.
14	29	59	29	66	72	61	70	64	66	62	S.W.	—	S.W.	—	·21	Thunder.
15	29	61	29	71	76	61·5	62	59	62	61	S.E.	—	N.	—	·20	Thunder.
16	29	73	29	78	69·5	58·5	68·5	63·5	64	61·5	S.S.W.	—	W.S.W.	—	—	
17	29	65	29	78	73	59	65·5	59·5	66	59	S.E.	—	N.W.	—	·03	Thunder.
18	29	85	29	83	70·5	60	68	63·5	65	63	N.E.	—	N.E.	—	—	
19	29	92	29	86	75	59·5	67·5	62	65·5	60	N.E.	—	N.E.	—	—	
20	29	87	29	79	75·5	57	68	62	67	63	S.S.E.	—	S.W.	—	—	
21	29	81	29	82	73	57	59	56	59	55·5	E.	—	N.E.	—	·26	Rain.
22	29	83	29	80	74	53·5	62	56	60·5	55	E.	—	S.W.	—	—	
23	29	97	30	06	68·5	53·5	59·5	53	52·5	47	N.E.	—	N.N.E.	—	—	
24	30	09	29	92	64·5	45·5	56	48·5	61	54·5	S.E.	—	S.W.	—	—	
25	29	72	29	78	66·5	55·5	67	62	67·5	65	S.W.	—	S.W.	—	·05	
26	29	92	29	76	74·5	55·5	60	53	61·5	58	N.E.	—	N.E.	—	—	
27	29	83	30	06	70·5	61·5	61·5	55	51·5	48	N.E.	—	N.E.	—	—	Squally; cloudy.
28	30	06	29	94	62	46·5	53·5	48·5	56	52	N.E.	—	N.E.	—	—	
29	29	95	29	95	54·5	52·5	57	53	59	56·5	S.E.	—	N.E.	—	—	
30	30	02	29	88	70·5	54	62·5	59	63	59	N.E.	—	W.	—	—	

OCTOBER, 1896.

Days of Month.	Barometer. 9 hrs. A.M.		9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Wet Bulb.	9 hrs. P.M. Dry Bulb.	Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Force.	9 hrs. P.M. Directions.	Force.	Rain or Snow previous 24 hrs.	Remarks.
1	29	78	29	75	77	61	67	64	66·5	64	S.W.	—	S.W.	—	—	
2	30	08	30	04	71	45·5	51	43·5	53·5	48	N.E.	—	N.E.	—	—	
3	30	15	30	12	65	46·5	55	47	54	48	N.E.	—	N.E.	—	—	
4	30	03	29	86	65·5	48	59	52·5	61	56	N.E.	Light.	W.	Light.	—	Drops of rain, evening.
5	30	04	30	04	71·5	51·5	52	49	50	47	N.E.	Strong.	N.E.	—	—	Cloudy.
6	30	10	30	17	57·5	44·5	49	44·5	47·5	44	N.E.	—	N.E.	—	—	Bright.
7	30	23	30	09	61	41	49	44·5	51	48	N.E.	—	N.E.	—	—	Bright.
8	30	08	30	00	63·5	46	56	49	51	47·5	N.E.	—	E.N.E.	—	—	Bright.
9	30	06	30	09	64·5	49·5	55·5	50·5	48	43·5	N.E.	—	N.E.	—	·10	Wind, east, overnight.
10	30	21	30	25	65	45·5	52	44·5	48·5	45·5	N.	—	N.	Light.	—	Bright.
11	30	26	30	11	62·5	41	53	47	54	47·5	S.E.	Light.	S.W.	—	—	Bright.
12	30	03	29	92	66·8	51·2	57·5	51·5	55	53·5	S.S.E.	—	S.W.	—	—	Dull; cloudy; rain.
13	30	05	30	04	65	46·5	50	45·5	48·5	43	N.	—	N.	—	·75	Bright.
14	30	12	30	10	59·5	44·5	51	44·5	48	43	N.	—	N.	—	—	Bright.
15	30	05	29	91	60	40	51	46	55	52·5	S.S.E.	—	N.E.	—	·02	Thunder 9 P.M.
16	30	06	30	01	63·8	47·3	52	48	53	50	S.S.E.	—	S.W.	—	—	
17	29	98	29	90	63	50·5	59	54	58	56	S.	—	S.W.	—	—	[overnight.
18	29	86	29	89	68	53	60·5	57	55·5	52·5	S.	—	S.W.	—	—	A few drops of rain
19	29	89	30	06	70·8	48·5	60	55·5	46	41·5	S.W.	—	N.W.	—	—	Geese going south in
20	30	12	30	13	69·5	35	39	34·5	39	35	N.E.	Strong.	N.E.	—	—	[large flocks.
21	30	20	30	14	47·5	33·5	40	36·5	43	39	N.E.	Light.	S.W.	—	—	Bright.
22	30	22	30	08	56	40	49	43·5	55	51	E.N.E.	—	S.	—	·03	
23	30	03	30	10	62·5	49·5	53·3	53	54	52·5	S.W.	—	S.W.	—	·02	Dull; rain.
24	30	14	29	92	60	48·5	54	52·5	56·2	53	E.N.E.	—	S.E.	—	·42	Rain and strong wind.
25	30	09	30	16	60	43·2	45	39	39	34·7	N.E.	Strong.	N.	Light.	—	
26	30	06	30	03	51	36·2	49·2	43·8	48·5	47	S.W.	Light.	W.S.W.	—	—	
27	30	11	29	98	61·2	42	48	45·5	53	48·2	N.E.	Light.	S.W.	—	—	
28	30	00	30	08	66	49·5	55	50	48·5	44·5	N.E.	—	N.E.	—	—	
29	30	08										—	S.S.W.	—	—	

Day of Month	A.M.	P.M.	Max.	Min.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Direction.	Force.	Direction.	Force.	Rain in Inches.	
1	30 01	30 83	55·8	39·8	52	48	54	49	S.W.	—	S.W.	—	—	
2	29 79	29 72	61·5	46·5	53·5	50	51·5	48	S.W.	Strong.	S.W.	—	—	Wind veered to N.N.W.
3	30 03	30 80	68·5	44·5	59·5	47·5	60	53·5	N.N.W.	—	N.	Light.	—	[at 10 p.m., strong.
4	30 06	30 87	59	35·5	49·8	33·7	53	48	S.W.	Strong.	S.W.	Light.	—	
5	30 06	30 87	49·5	28	37	30·5	48	43·5	S.W.	—	S.W.	—	—	
6	30 06	30 88	52·5	37·5	51	47	41·5	41·5	S.W.	—	S.E.	Light.	—	
7	30 01	30 83	58·5	36·8	46	43	39·5	38	N.E.	—	S.E.	—	—	
8	30 01	30 83	63·5	39	48	38	33	30	N.E.	—	S.E.	—	—	
9	30 41	30 87	48	41	38·8	35	43	37	S.E.	—	S.W.	—	·03	Fine; bright.
10	30 37	30 82	58	39	35·5	33	49	45·5	S.S.E.	Light.	N.E.	—	—	
11	30 25	30 85	57	41·5	45·2	43	39·5	36·5	N.E.	—	N.E.	—	—	
12	30 17	30 81	55·3	38·5	43·5	40·2	39·5	37·5	N.E.	—	S.W.	—	—	Fine; bright.
13	30 23	30 81	58·8	38·5	38·3	34	46	43·8	S.	—	S.W.	—	—	
14	30 16	30 82	58·5	42·2	46	41	51	49·1	S.S.W.	—	S.W.	—	—	
15	30 15	30 83	63·5	46·5	49	46·5	44	41·2	N.E.	—	N.E.	—	—	
16	30 25	30 83	57·5	44·8	44	43·3	40	40	N.E.	—	N.E.	—	—	
17	30 24	30 82	55·2	39·8	40	38·3	43	41	S.S.W.	—	S.W.	—	—	Fine; bright.
18	30 01	30 82	58·5	33·6	43·5	38	43·5	37·5	N.E.	—	N.E.	—	—	Fine; bright.
19	30 03	30 82	58	39·8	49·8	38	49·8	37·5	N.E.	—	N.E.	—	—	Fog, evening.
20	30 24	30 83	57·2	33	38·7	35·2	46	44·2	N.E.	—	N.E.	—	—	Fog, morning; foggy.
21	30 07	30 85	57·9	39·5	44	43	46	45	N.	Light.	S.W.	—	—	Strong wind, evening.
22	30 08	30 89	59·2	43·5	50	47	54	50·8	S.E.	—	N.E.	—	·48	Rain in early morn.
23	30 11	30 88	57·2	43·5	43·1	40·9	43·6	39	N.E.	—	N.E.	—	—	
24	30 07	30 88	56·1	36·2	44	38	42·5	39·5	S.S.E.	—	N.E.	—	—	Rain in evening.
25	30 05	30 87	58·2	39·2	43	38·5	38·3	36·8	N.E.	—	N.E.	—	·04	Strong wind overnight.
26	30 16	30 85	52	38	38·8	31	36·1	34·8	N.E.	Strong.	N.E.	—	—	
27	30 08	30 88	43	24·9	24	23·8	20·5	18·1	N.E.	—	N.E.	—	·01	Snow A.M.
28	30 04	30 88	37·8	14·1	18·1	16·1	18	15·7	N.E.	—	S.W.	—	—	
29	30 04	30 88	32·8	26·5	26·9	23·5	23·1	20·8	S.S.E.	—	N.E.	—	·05	Snow A.M.
30	30 24	30 88	26·9	13·5	19·9	18	34·5	30·8	S.S.E.	Strong.	S.W.	—	—	Bright.

DECEMBER, 1896.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	30	11	30	22	33·5	22·5	25·1	23·2	27·2	25	N.E.	Light.	N.E.	Light.	—	
2	30	47	30	45	43·5	19·2	22·5	20·1	18	16·5	N.E.	—	N.N.W.	—	—	
3	30	26	30	17	30·8	13·5	24	20·5	18·5	17	N.N.W.	—	N.N.W.	—	—	
4	30	37	30	35	31·2	9·5	11	9·7	10·5	9	N.E.	—	N.E.	—	—	
5	30	28	30	15	22·9	8·5	19	17	24·5	23·5	S.	—	S.	—	—	
6	30	23	30	34	28	16·5	23·5	22·8	18·5	17·5	E.	—	E.N.E.	—	—	
7	30	45	30	39	35·9	11·2	19	17·5	20	18	S.S.E.	—	S.E.	—	—	Fine; bright.
8	30	41	30	34	34·5	17·2	24·8	21·8	24	22	N.E.	Light.	E.N.E.	—	—	Fine; bright.
9	30	32	30	26	36·5	24·2	36	33·7	35·5	33·8	S.W.	—	S.S.W.	—	—	
10	30	29	30	24	46·5	30·5	30·5	30	31·7	31	N.E.	—	E.N.E.	—	·01	Hail; showery.
11	30	26	30	25	33·8	30·2	32·5	32	33·5	33·2	E.N.E.	—	N.E.	Light.	—	Fog (heavy all day).
12	30	17	30	14	38	32·5	38·1	37·5	38	37·5	S.W.	—	S.W.	—	·31	Rain P.M.
13	30	23	30	18	43·8	29·3	32·5	28·5	30	26·8	N.E.	—	N.	Light.	—	Bright.
14	30	36	30	31	44·5	24·8	29	25	28	25·3	N.E.	—	S.E.	—	—	
15	30	10	29	88	41·5	27	34·5	31·1	37·2	35·9	S.	—	S.	—	—	
16	29	92	30	16	39	30	29·5	24·5	24	21	N.N.W.	Strong.	N.	—	—	
17	30	43	30	49	29	16·5	18·5	16	16·5	15	N.E.	—	N.E.	—	—	
18	30	45	30	32	29·5	13·2	16	14·5	20·2	18·5	N.E.	—	N.E.	—	—	
19	30	33	30	36	29·5	19·5	29	26·2	31	29	S.S.W.	—	S.W.	—	—	
20	30	50	30	53	34·8	13	13	10·5	10	8	N.E.	Strong.	N.E.	Light.	—	
21	30	53	30	38	17·5	5	7·5	5·5	10	8	N.E.	—	N.W.	—	—	
22	30	28	30	26	20·5	11·2	17·5	15	19·7	18	N.W.	—	N.N.W.	—	—	
23	30	29	30	26	27·5	17·2	25·3	22·2	20·5	17·8	W.N.W.	—	S.W.	—	—	
24	30	20	30	22	38·5	18	27·5	26	27	25·7	S.W.	—	S.W.	—	—	
25	30	32	30	30	33·5	21·2	28·2	27	30·8	28	S.W.	—	S.W.	—	—	Foggy A.M.
26	30	24	30	26	36·9	27·8	32·2	29·5	23·9	21	W.N.W.	—	N.W.	—	—	
27	30	19	29	96	36·9	20	28	26	25·5	23·7	S.W.	—	S.W.	—	—	Bright. [N.W.
28	29	86	30	00	39·9	23·5	27	26	24·8	23	S.W.	—	N.W.	—	—	Dull; wind veered to
29	30	15	30	21	33·8	12·1	19	16	16·2	14	N.E.	—	N.	—	—	
30											W.	—	W.N.W.	—	—	

JANUARY, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	30	43	30	40	33·6	11·5	22	20	21·5	19·5	S.	Light.	S.	—	—	Bright.
2	30	35	30	31	37·5	18·8	27	25	31	29	S.	—	S.S.W.	—	—	Bright.
3	30	14	30	26	38·9	27·5	33	30·5	25·5	24·8	S.W.	—	S.W.	—	—	
4	30	31	30	28	45·4	21	25	23	30·3	26·8	S.E.	—	E.N.E.	—	—	[snow.
5	30	07	29	96	46·5	27·2	28	25	23·5	23	N.E.	Light.	N.N.E.	—	·08	Dull; cloudy; hail and
6	30	21	30	20	30·6	17	17·5	16·3	16·8	15·6	N.E.	—	N.E.	—	—	
7	30	25	30	26	26·3	11	15·5	14·5	15	14·1	S.S.E.	—	S.E.	—	—	Bright.
8	30	17	30	10	31·9	8·9	11·5	10·2	25	23	S.	—	S.E.	—	—	
9	30	10	30	23	34·5	23·3	27	26	24·2	21	S.W.	—	W.	—	—	Bright.
10	30	37	30	30	44·2	14·9	19·5	16·5	20·2	17·8	E.	—	E.	—	—	Bright.
11	30	26	30	31	33·9	19	30	28	22	21·2	S.W.	—	N.E.	—	·02	Dull; snow.
12	30	36	30	36	29·4	20·5	21·5	20·8	22	21	N.E.	—	N.E.	—	—	
13	30	37	30	27	30·1	14·6	15	13·9	12	11·1	N.E.	—	N.E.	—	—	
14	30	17	30	23	24·4	8·5	10·5	9·5	11	10	N.E.	—	N.E.	—	—	
15	30	29	30	22	15·1	0·4	2·5	2	3·8	3·2	N.E.	—	N.E.	—	—	River closed.
16	30	22	30	29	27·5	4·2	20	18	17·5	16	S.W.	—	N.E.	—	·01	Snowy overnight.
17	30	37	30	34	27·5	5·5	8	6	3·5	2·5	N.E.	—	N.E.	—	—	
18	30	35	30	33	24·3	2	8	6	3	2·5	N.	—	N.	—	—	
19	30	21	30	19	14·9	4·3	3·5	2	10	8·5	S.	—	N.W.	—	—	
20	30	11	30	12	24·9	4·9	15·5	14·9	22	20·5	S.	—	S.W.	—	—	
21	30	30	30	24	31	7	14	11·5	23·5	21·1	S.S.W.	—	S.W.	—	—	
22	30	41	30	33	31·5	3·9	6·5	4	4	2·8	N.E.	—	N.E.	—	—	
23	30	39	30	46	16·1	6·5	10·1	9	12·5	10·9	N.E.	—	N.E.	—	—	Bright.
24	30	51	30	42	29·9	2·5	18	16	18·8	17·5	S.W.	—	S.W.	—	—	Bright.
25	30	35	30	19	32·2	13·5	25	23·3	26·5	25	S.W.	—	S.W.	—	—	
26	30	02	29	88	32·3	24·9	28·5	27·4	30·3	29	S.W.	—	S.W.	—	—	
27	29	98	30	07	34·1	25	28·5	25·1	23	19·5	N.E.	—	N.E.	—	—	
28	30	21	30	26	38·2	11·3	16·8	13·9	18·5	14	N.E.	—	N.E.	—	—	Bright.
29	30	27	30	21	31·1	7·7	17·5	15·5	24	21·2	S.E.	—	S.W.	—	—	
30	30	17	30	19	31·7	21·3	27·2	24·5	26·2	24·9	S.	—	S.W.	—	—	
31	30	21	30	15	37·3	22·3	32	30·7	32·2	30·1	S.	Light.	W.	—	—	Fine; bright.

FEBRUARY, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	30	19	30	28	37·8	22·3	22·3	21·5	6·5	4·9	N.E.	Strong.	N.E.	—	·09	Snowy.
2	30	31	30	20	22·8	0·3	5	4	4·2	2·8	S.	—	E.	—	—	
3	30	11	30	11	15·1	3	9·5	8	6·5	5	N.N.E.	—	N.	—	—	
4	30	11	30	17	19·9	·5	7	5·5	3	1	N.E.	—	N.	—	—	
5	30	22	30	31	14·5	·5	2·5	1·1	1	2	N.	—	N.	—	—	
6	30	41	30	45	12·8	2·8	4	3	5	3·5	E.	—	E.S.E.	—	—	
7	30	38	30	32	12·9	·5	9	7·5	15·2	14·5	S.S.W.	—	S.W.	—	—	
8	30	43	30	40	28·2	5	8·8	7	11·2	10	E.N.E.	Light.	N.E.	Light.	—	
9	30	41	30	39	22·8	4	9·5	7	6·5	5·1	N.	—	N.E.	—	—	
10	30	37	30	32	13	1	4·2	3	4·1	2·2	N.E.	—	N.E.	Light.	—	
11	30	35	30	43	20·1	1	7·8	6·5	16·5	14·8	N.E.	—	N.E.	—	—	
12	30	39	30	37	21·8	5·6	15	14	21·2	19	S.	—	E.N.E.	—	—	
13	30	32	30	31	33·8	10	20	18·5	28·1	26	S.	—	S.W.	—	—	
14	30	31	30	22	35	24	30·5	27·8	30·8	28·5	S.	—	S.W.	—	—	
15	30	34	30	42	35·8	20·5	21	19	14·5	12	N.N.E.	Strong.	N.E.	Light.	—	Dust Storm.
16	30	44	30	52	27·8	6	14·5	11·5	20	17·5	N.N.E.	Light.	N.	Light.	—	
17	30	62	30	60	32	11·3	20	17·8	23·8	21	N.N.E.	Light.	N.E.	Light.	—	Fine
18	30	56	30	42	35	13·9	22·5	20·3	27	23·8	N.E.	Light.	N.E.	Light.	—	Fine
19	30	36	30	30	41	14·6	25·2	23·2	29	26 1	S.	Light.	N.	Light.	—	Fine
20	30	29	30	27	43	16·8	26	24·8	27·5	26·1	S.	Light.	S.S.W.	Light.	—	Fine
21	30	30	30	25	45·5	18·8	29·5	26·1	27·1	26·9	S.	Light.	S.W.	—	—	Fine
22	30	15	30	09	46·8	25·5	31·8	30	30	28·6	S.W.	Light.	S.W.	—	—	Fine
23	30	05	30	04	47·1	30·5	36	32·7	35·2	32·8	S.W.	—	S.W.	—	—	Dull; threatened snow.
24	30	00	30	13	45·6	31·8	35	33	31·2	29·5	S.W.	—	N.	—	—	
25	30	15	30	11	45·5	25	29·5	25·7	30·1	27·1	N.W.	—	N.	Light.	—	
26	30	14	30	02	40	23·3	29·1	28	29	26·5	W.	Light.	S.W.	—	—	
27	30	01	30	06	46	28	34	31·5	33	31	S.W.	—	W.S.W.	Light.	—	
28	30	31	30	30	49·1	20·3	26	20·5	25	21·1	N.E.	—	N.E.	—	—	

Fine, Fine, Fine, Fine, Fine, Fine — Beautiful weather.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	30	42	30	39	35·1	12	17·2	14·2	17·9	14·8	N.E.	Strong.	N.E.	Light.	—	
2	30	28	30	02	26·1	11·5	20·1	17·9	28·8	25	N.	Light.	S.W.	—	—	
3	29	99	29	99	32·1	27·8	34·5	32·5	34	32	S.W.	—	S.W.	Calm.	—	
4	29	99	30	26	47·2	27·9	28·1	27·2	28·5	26·8	N.E.	Strong.	N.E.	—	·11	Snowy.
5	30	44	30	34	38·5	23·5	32·2	29·5	33·5	29	N.E.	Calm.	S.W.	—	—	[sleet.
6	30	21	29	99	47·4	32	36·2	32·1	33·8	33	S.W.	Calm.	S.W.	—	·37	Slight fog; snow and
7	29	96	30	08	43	33·8	35·2	34·5	35·8	34·5	N.E.	Calm.	N.E.	Calm.	—	
8	30	11	30	12	43·8	32·3	35·7	34·5	35	32·8	N.E.	—	N.N.E.	—	—	Cloudy; strong wind
9	30	28	30	26	41·8	27·5	28·5	25·1	30	26·8	N.E.	Strong.	N.E.	—	—	[overnight.
10	30	25	30	27	35·8	27	32·5	28·9	31	26·8	W.	Light.	N.E.	—	—	
11	30	41	30	50	45·4	19·9	21·5	19·5	25	20·8	N.E.	Strong.	N.E.	—	—	
12	30	62	30	57	31·2	16·8	22·5	19	24·1	20·8	N.E.	—	E.N.E.	—	—	
13	30	43	30	28	32·3	19·8	25	22	30·1	26	S.	—	S.W.	Strong.	—	
14	30	20	30	10	35·5	28	34·7	30·2	34·5	31·9	S.	—	S.W.	—	—	
15	29	97	30	14	42·8	33·2	35·2	34·5	31	29·8	S.W.	—	N.	Calm.	·14	Sleet and rain overnight.
16	30	30	30	27	39·3	26·8	32·4	28	31	27·5	N.N.W.	Calm.	S.E.	—	—	River opened P.M.
17	30	25	30	35	42·3	28	34·1	31	32·7	30	S.W.	—	N.E.	—	—	
18	30	44	30	34	42·6	28	26	22	28·3	23·9	N.E.	Strong.	N.E.	—	—	
19	30	36	30	35	34·9	24·5	28	23·6	26·3	22·5	N.E.	Strong.	N.	—	—	First steamer arrived.
20	30	37	30	33	36·9	20	28·9	23·8	27	23	N.E.	—	N.	—	—	
21	30	39	30	32	36·5	21·8	31	25·7	33	28·6	S.E.	—	W.	—	—	
22	30	36	30	42	44·2	31·5	35	32·2	33·1	31·5	E.	—	E.N.E.	—	·01	Threatened snow A.M.
23	30	52	30	50	42·9	24·3	34·5	30·1	33·8	29	N.E.	—	N.E.	—	—	
24	30	52	30	44	47	31	36	33·4	39	35	N.E.	Light.	N.E.	Light.	—	
25	30	40	30	33	50·1	35·8	38	35	40	36·5	E.	Light.	N.	—	—	
26	30	26	30	20	51·8	35·4	40·5	37·8	39	37	N.E.	—	N.E.	—	·06	Rain P.M.
27	30	17	30	14	47	34·3	36·5	35·2	39	37	N.E.	—	N.E.	—	—	Dull.
28	30	13	30	12	39·8	34·5	41·1	39·2	44·2	41·7	N.E.	Light.	N.E.	Light.	—	
29	30	04	29	99	54·6	39	41	38·9	39·1	37	S.W.	Light.	S.W.	—	—	Dull.
30	30	07	30	10	48	34·9	42·1	37	42·1	36·5	N.E.	Light.	W.	—	—	Bright.
31	30	16	30	07	54	36	44·1	38·8	43·5	39·5	N.E.	Light.	E.N.E.	—	—	Bright.

APRIL, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Wet Bulb.	9 hrs. P.M. Dry Bulb.	Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Force.	9 hrs. P.M. Directions.	Force.	Rain or Snow previous 24 hrs.	Remarks.
1	29	98	29	91	54·3	37	45	39	44	41·2	E.	Light.	N.E.	Light.	—	Cloudy.
2	29	91	29	98	53	36·3	39·5	36·5	42·5	36·8	N.E.	Strong.	N.E.	Strong.	—	
3	30	12	30	11	51	36	39	34	41·5	38·9	N.E.	—	N.E.	—	—	Bright. [in flocks.
4	30	10	30	10	51	34·8	36	34	39·5	37·9	N.E.	—	W.	—	·19	Snow; Geese going N.
5	30	07	30	08	48	33	41	39	41·1	39·9	S.W.	—	W.	—	—	Bright; foggy P.M.
6	30	08	30	00	47·8	36·4	43·8	42·5	43·3	39·8	S.W.	—	S.W.	—	—	Bright.
7	29	90	29	78	54·7	38	50·5	42	52	46·2	S.	Strong.	S.W.	—	—	
8	29	68	29	61	59·5	43	42·3	40·3	42·5	39·5	S.W.	—	W.S.W.	Strong.	·10	Rain. [night.
9	29	69	29	82	49	36·5	41·2	35	45·5	41·2	N.N.W.	Strong.	S.W.	—	·28	Rain; strong blow over
10	29	98	29	96	51	45	44·5	42·5	49·2	42	S.	Calm.	S.W.	—	—	Bright.
11	29	95	29	96	58·7	41·5	55·2	46·5	52·5	45·5	S.W.	—	S.W.	—	—	Bright.
12	30	00	29	95	63·8	45·7	56	46·8	53·7	48·5	S.	—	S.E.	—	—	
13	30	05	30	18	64·8	44	44·5	43·9	42·8	39·4	N.E.	Strong.	N.E.	—	·75	Rain.
14	30	31	30	28	47·9	36·7	41	37·9	42	37·7	N.E.	—	N.E.	—	·10	Rain; clear P.M.
15	30	19	30	09	49·9	37·5	45·3	41·2	45·2	39·8	N.E.	—	S.W.	—	—	
16	30	09	30	23	56·5	43·5	47	42	44	40·2	S.W.	Strong.	N.E.	Strong.	—	
17	30	28	30	17	54·2	36	46	42·1	46	41·5	S.W.	—	S.W.	—	—	
18	30	08	30	08	53·8	45·5	50	43·5	47·3	45·2	S.W.	Strong.	S.W.	—	—	
19	29	90	29	68	55·1	42·8	54	47·5	55·8	46·2	S.W.	—	S.W.	—	—	
20	29	51	29	53	58·9	50	50	45·2	48·3	44·1	S.E.	Strong.	N.W.	—	—	Rain; thunder P.M.
21	29	53	29	82	55	44	46·2	40·8	44·9	41	N.W.	Strong.	N.W.	—	·73	
22	29	99	29	98	53·1	41·5	48·1	43·7	48·5	44	N.N.W.	Strong.	W.	—	—	
23	29	96	29	88	60	42·8	47·3	42·8	44·5	43·8	S.S.E.	Light.	S.S.E.	—	—	Dull; rain.
24	29	85	29	87	47·9	43	45	43·8	49	47·5	E.N.E.	—	N.	Light.	·42	Dull.
25	30	05	30	13	59	43·5	52	49·9	52·1	39·5	S.W.	Light.	E.	Calm.	—	
26	30	21	30	13	60·8	42·2	51·1	47·8	53	48	S.W.	Light.	S.W.	—	—	
27													E.N.E.			

MAY, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	29	81	29	71	67	56	62·5	53·8	60·1	52	S.W.	—	S.W.	—	—	
2	29	67	29	68	72	53·9	63·5	52·9	60	53	S.W.	Strong.	S.W.	—	—	
3	29	62	29	52	76·5	59·8	67	56·2	63·5	58	S.W.	Strong.	S.W.	—	—	[over night.
4	29	51	29	46	73·5	44·5	69	59	65·2	57·2	S.W.	Strong.	S.W.	—	—	Wind veered to N.E.
5	29	85	29	84	59·8	56·9	49·2	46	55·5	49·5	N.E.	—	N.E.	—	—	
6	29	86	29	70	67	47·3	60	50	57	51·5	E.	—	N.	—	—	
7	29	68	29	60	63·8	52·2	58·8	48	58·2	49·7	S.W.	—	S.W.	—	—	[wind & rain to noon.
8	29	63	29	80	54·5	47·5	56	51·5	51·2	48·1	W.	—	S.	—	—	Wind to N.W. 9·30 A.M.;
9	29	90	29	89	63·5	53	55·5	47·5	58·1	49·9	S.W.	—	S.S.W.	—	·10	
10	29	92	29	81	62·2	52·9	58	49	47·5	55	S.S.W.	—	S.W.	—	—	
11	29	76	29	72	66·2	59·9	59·9	53·8	61·5	54·8	S.W.	—	S.W.	—	—	
12	29	84	29	82	74·5	57·8	62	57	66	60	W.S.W.	—	N.W.	Light.	—	
13	29	88	29	80	72·7	57·2	63·3	59·2	63	57	N.E.	Light.	W.	Light.	—	Cloudy.
14	29	83	29	86	67·8	51·9	65·1	60·1	55·1	53·5	W.N.W.	Light.	N.E.	Strong.	—	Rain P.M.
15	29	79	29	81	71·5	50·6	58·7	55·8	62·2	53·5	N.E.	Light.	N.	—	·12	
16	29	92	29	82	68·2	50·5	62·2	53·5	59	52·1	E.N.E.	—	S.W.	—	—	
17	29	70	29	60	65	52·2	63·1	49·6	63	53·8	S.W.	—	S.W.	Strong.	—	
18	29	61	29	59	68·9	52·8	63·5	56	63·4	57·3	S.W.	Strong.	S.W.	—	—	Thunder; rain.
19	29	58	29	47	72·7	59·2	64	59·8	63·1	54·7	W.	Light.	S.S.W.	—	·12	
20	29	43	29	58	71·2	52·5	66	57·6	61·5	55·7	N.N.W.	—	N.E.	Light.	—	[P.M.; rain.
21	29	71	29	60	72·2	63	63·8	56·5	66·3	58·5	W.S.W.	Light.	S.S.E.	Light.	—	[rain; thunder squall
22	29	56	29	48	73	57·4	68	58	63·5	58	S.W.	—	N.E.	—	—	Dull A.M.; threatened
23	29	59	29	65	65·3	54·3	57·7	55	61·2	56·2	N.E.	—	N.	—	·01	Rain.
24	29	77	29	70	76·3	58·9	62·5	55·5	65	58·3	N.N.W.	Light.	W.	—	—	
25	29	71	29	66	77·5	63·3	66·2	58·8	68·3	59·1	S.W.	—	S.S.W.	—	—	
26	29	69	29	63	75	60·9	70·5	60·5	70·1	58	S.W.	—	S.W.	Strong.	—	
27	29	56	29	56	64	52·5	64	58·6	57·2	55	S.W.	Strong.	S.W.	—	—	Thunder; rain.
28	29	45	29	26	65	59	61·2	55·5	57	55·9	S.E.	—	N.W.	—	·10	Thunder; rain.
29	29	21	29	36	66·5	57·9	62·3	55·9	61·5	56	S.W.	—	N.	—	·20	
30	29	52	29	59	73·3	55·9	66·1	58·5	64	57·1	N.W.	—	S.W.	—	—	
31	29	53	29	59	71·6	60	71	58	63	58	S.	—	S.E.	—	—	Thunder and rain.

JUNE, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	29	55	29	47	75	63·2	70	63·2	69	65·1	S.S.E.	—	S.S.E.	—	·06	
2	29	46	29	35	68·3	60·5	69	65·5	65	63	S.S.E.	—	W.S.W.	—	—	Rain.
3	29	46	29	39	68	65·9	62	60·8	67·2	65	W.S.W.	—	S.W.	—	·29	
4	29	33	29	42	77·5	60·2	76	67·1	67	62·5	S.W.	—	W.S.W.	—	—	Thunder and Rain.
5	29	55	29	59	77	61·5	70·1	60	67·2	62·2	N.N.E.	—	N.E.	—	·03	
6	29	72	29	67	79	63·8	71	63	70	63·5	N.E.	—	N.E.	Calm.	—	
7	29	68	29	71	78	63·5	73·5	62·9	68·5	60·8	S.S.W.	—	S.	—	—	
8	29	70	29	66	84·9	68·2	76·1	65	72	65	N.E.	Calm.	S.W.	—	—	
9	29	67	29	76	75	63·9	73·4	62	66·5	64·9	S.W.	—	S.W.	—	—	Dull A.M. ; rain P.M.
10	29	71	29	63	71	61·9	66·5	61·5	64	59·8	S.W.	—	S.	—	·05	
11	29	57	29	54	71·8	63·3	65·5	62·1	63·3	62	W.	—	W.S.W.	—	—	[hail over night.
12	29	53	29	48	74·5	65	68·3	64·3	68	64·5	S.W.	—	W.S.W.	—	—	[thunder ; rain and
13	29	46	29	42	74·8	62·3	70·8	64·5	71·5	66·3	S.W.	—	S.W.	—	—	Showers A.M. ; heavy
14	29	44	29	35	72·5	64·9	70	64·5	69	63·9	S.E.	—	N.E.	—	·75	
15	29	38	29	40	78	63·7	72·5	64·5	71·5	66·3	N.E.	Calm.	W.	Calm.	—	
16	29	47	29	41	83·4	69·9	74	65	72·5	64·3	S.	—	W.S.W.	—	—	
17	29	46	29	39	87	69	77	66	76·1	69	S.W.	—	N.N.W.	—	—	
18	29	47	29	45	81	69·9	78·5	67·2	74·2	69·5	S.	—	W.N.W.	—	—	
19	29	55	29	49	83	66·5	73·7	69·5	71	68	W.S.W.	—	W.S.W.	—	—	
20	29	50	29	34	84	66·5	74·7	69	76·8	68·1	S.W.	—	S.W.	—	—	
21	29	40	29	31	90·2	69·4	79·2	72·5	78	71·8	S.W.	—	N.	Light.	—	
22	29	34	29	28	84	69	77	69·8	78	74	S.W.	—	S.W.	—	—	Drops of rain.
23	29	31	29	28	83	71	79·1	68·5	76·5	70	S.W.	—	S.W.	—	—	[rain.
24	29	36	29	36	83	71	76·5	68·1	75	65·2	S.W.	—	S.E.	—	—	Thunder ; few drops
25	29	49	29	50	81·5	67	75	68·5	74·5	69·5	S.W.	—	W.S.W.	—	—	
26	29	53	29	52	81·5	67	76	68·3	73·6	68·5	W.S.W.	—	W.S.W.	—	—	
27	29	58	29	52	83	66·1	74	67·9	73·1	68·9	S.W.	—	W.S.W.	—	—	

Day	—	—	max.	min.	Bulb.	Bulb.	Bulb.	tions.	force.	tions.	force.	d E.f	
1	49	47	80·3	69·4	66·5	75·5	77·5	S.W.	—	W.	Calm.	—	
2	51	50	83	69·3	67	74	78·8	W.S.W.	—	W.S.W.	—	—	
3	48	44	83·6	72	69	77	79	S.W.	—	S.W.	—	—	Thunder.
4	47	45	84	71	72·4	78	80·1	S.	—	W.S.W.	—	—	
5	49	47	84	74	73	77	79	W.	—	W.S.W.	—	—	Rain.
6	44	44	84	74	69	74·3	80	S.W.	—	W.S.W.	—	—	
7	50	50	75	73	67·5	73	75	N.E.	—	S.E.	—	·11	
8	50	49	80	72·6	72	75·5	77	S.W.	—	S.W.	—	—	
9	35	35	81·5	72·5	72	77·3	82	S.W.	—	S.W.	—	—	
10	37	38	80·8	73·8	73·5	75	80·1	E.	—	S.W.	—	—	
11	34	28	85	77·3	73	81·1	81	S.W.	Strong.	S.W.	Strong.	—	
12	18	18	81·3	72	74·8	75	81	S.	—	E.N.E.	—	—	Heavy rain.
13	32	31	82	72·7	72·5	73·3	78·5	S.W.	—	S.W.	—	1·60	Rain.
14	32	28	86	74·5	76·8	77·5	79·8	E.S.E.	—	W.	—	·69	
15	57	57	86	74·5	74·6	76·5	80·3	S.S.W.	—	S.W.	—	—	Rain over night.
16	69	69	73·9	65·8	75	75	79·4	N.E.	—	N.	—	·08	Gale A.M., with rain.
17	43	33	78	68·3	67·8	75	78·8	N.	—	N.	—	·33	
18	34	34	88	66	72	77·1	77·8	S.W.	—	W.S.W.	—	—	Rain, evening.
19	38	34	81	66·3	70·5	75	78	W.S.W.	—	N.W.	—	·03	Blow P.M., with shower.
20	36	34	83·3	71	67	74·5	77·8	S.W.	—	N.W.	—	·01	
21	47	41	84·3	73·5	73	76	78·8	S.W.	—	S.W.	Calm.	—	
22	44	43	89·1	73	75·3	80	85·5	E.	—	W.	—	—	
23	41	39	84·8	73·5	77·3	79·5	81·5	W.S.W.	—	S.W.	—	—	
24	43	34	88	73·3	76·3	80·9	82	S.W.	—	S.W.	—	—	
25	43	38	83	75·5	76	78·5	80	S.W.	—	N.W.	—	—	
26	38	35	87	75	75	79·1	80·6	S.E.	—	S.E.	—	—	Shower and thunder.
27	49	48	84	78·5	74·3	74·3	79·5	E.	—	E.N.E.	—	·01	Rain.
28	59	58	75·5	73·5	73·3	73·5	73·5	E.N.E.	—	E.	—	·18	Rain.
29	45	43	88	75	76	77	78·5	S.E.	—	—	—	·01	Two showers.
30	44	39	86·5	72·5	73·5	78	80·5	S.	—	S.	—	·72	
						81		S.E.	—	E.	—		Rain.

AUGUST, 1897.

Days of Month.	Barometer. 9 hrs. A.M.		Barometer. 9 hrs. P.M.		Thermometer in Shade. 9 hrs. A.M. Max.	Thermometer in Shade. 9 hrs. A.M. Min.	Hygrometer in Shade. 9 hrs. A.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. A.M. Wet Bulb.	Hygrometer in Shade. 9 hrs. P.M. Dry Bulb.	Hygrometer in Shade. 9 hrs. P.M. Wet Bulb.	Wind. 9 hrs. A.M. Directions.	Wind. 9 hrs. A.M. Force.	Wind. 9 hrs. P.M. Directions.	Wind. 9 hrs. P.M. Force.	Rain or Snow previous 24 hrs.	Remarks.
1	29	32	29	26	78	73·5	74	71	77	74·5	N.E.	—	S.E.	—	·06	Squally.
2	29	36	29	35	89	75	79	75·5	76	74	S.	—	S.	Light.	·05	
3	29	36	29	31	84	77	79·5	76	80·5	77·5	S.	—	S.W.	Light.	—	
4	29	37	29	28	84	77·5	80·5	75·5	79	76·5	S.	Light.	W.	—	—	
5	29	22	29	19	83	77	80·5	77	79	77	S.	Light.	S.	—	·02	Shower.
6	29	23	29	26	85	76	82	78·5	80·5	78	S.	—	S.	Light.	—	
7	29	28	29	32	87·5	77	85	78	79·5	74·5	S.E.	—	S.	Light.	·15	Showery.
8	29	40	29	40	82	73·5	77·5	75	76	74	S.	—	S.	—	·72	Heavy showers.
9	29	35	29	32	82·5	77	80	77	79	76·5	S.	—	S.	—	—	
10	29	25	29	24	86	76	82	78·5	82·5	76	S.W.	—	S.	—	—	
11	29	14	29	40	78	74	79	75	75	73	S.E.	—	S.E.	—	1·24	Rain (steady).
12	29	—	29	18	84	76	79	75·5	79	76	N.W.	—	S.	Light.	—	
13	29	30	29	42	87·5	75·5	84	78	79·5	76·5	N.	—	—	Calm.	—	[P.M. due south.
14	29	55	29	57	88	76·5	83	77	80·5	77	N.E.	—	N.	—	—	[Waterspout seen at 6
15	29	60	29	56	85	74	82·5	78	80	77	N.	—	S.E.	—	·23	Thunderstorm with rain.
16	29	51	29	40	85	74·5	82	77·5	81·5	77	S.W.	—	S.	—	·49	Sharp showers.
17	29	38	29	42	77	68	75	73	74	71	S.	—	S.	Light.	·36	Rain.
18	29	48	29	44	82	67·5	77·5	69	74·3	72	S.	—	S.	Light.	—	
19	29	40	29	42	82	69·5	80	72	76	71	S.	—	—	—	—	
20	29	48	29	45	84	72·5	78	72	77·3	74·8	S.	—	—	—	—	
21	29	46	29	49	84	74	82·5	73	77	72	S.	—	S.E.	—	—	[showery.
22	29	53	29	48	82	74·5	78	74	74·5	71	E.	—	S.E.	—	·03	Overcast all day and
23	29	40	29	29	81·5	72	79	77	80	78	S.W.	—	S.W.	—	·27	Sharp heavy showers.
24	29	44	29	54	78	68	76·8	66	69	66	N.E.	—	N.	—	·04	
25	29	56	29	55	82	68·5	74	65	73	69	N.	—	—	Calm.	—	
26	29	59	29	53	78	70	72·5	68	73	68·3	S.E.	—	S.	—	—	
27	29	51	29	50	84	68	79·8	73	76	72	N.	Light.	—	Calm.	—	
28	29	58	29	52	80·5	69	75	69	72	68	N.E.	—	S.	Light.	—	

Days of Month.	Barometer.		Thermometer in Shade.		Hygrometer in Shade.				Wind.				Rain or Snow previous 24 hrs.	Remarks.
	9 hrs. A.M.	9 hrs. P.M.	9 hrs. A.M.		9 hrs. A.M.		9 hrs. P.M.		9 hrs. A.M.		9 hrs. P.M.			
			Max.	Min.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Directions.	Force.	Directions.	Force.		
1	29 49	29 47	82	72·5	78	70	76	67	S.W.	—	S.	Stiff breeze.	—	
2	29 48	29 47	83·5	69	78	72·5	76	73	S.W.	Fresh.	S.	—	—	
3	29 53	29 56	87	61	81	69·5	72	68·5	N.	—	—	Calm.	—	
4	29 62	29 67	83·5	64	77	64	72	68	S.	Light.	S.	—	—	
5	29 70	29 62	83·5	67	76	65·5	74	68	S.	—	S.	Light.	—	
6	29 47	29 54	84	70	80	70	74	70	S.	—	S.	Light.	·28	Light showers.

APPENDIX II

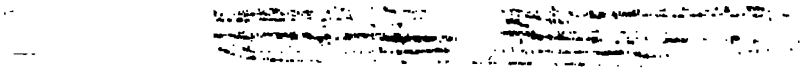
ITINERARY OF THE JOURNEY FROM VLADIVOSTOCK TO LAKE BAIKAL

Date.	Place.	Population.	Distance from place to place in versts.	Total distance in versts.
1900.				
May 14	Vladivostock	30,000	—	—
,, 15-16	Habarovsk	16,000	719	—
,, 17-21	Novgorodskaia	—	20	739
,, ,,	Nishne Spaskaia	13	26	765
,, ,,	Verkhne Spaskaia	11	12	777
,, ,,	Zabyllovskaia	61	15	792
,, ,,	Lugovaia	82	10	802
,, ,,	Petrovskaia	5	14	816
,, ,,	Voznesenskaia	—	28	844
,, ,,	Golovina	582	32	876
,, ,,	Stepanova	421	15	891
,, ,,	Voskresenskaia	210	18	909
,, 22	Mikhailovo Semenovskaia	655	22	931
,, ,,	Mohanko	—	25	956
,, ,,	Sungari River	—	4	960
,, ,,	Novinskaia	—	15	975
,, ,,	Kvashninskaia	473	14	989
,, ,,	Ventselevskaia	788	10	999
,, ,,	Dobraia	—	27	1,026
,, ,,	Nagibovo	—	21	1,047
,, ,,	Blagoslovennoe	1,194	7	1,054
,, 23	Puzina	547	15	1,069
,, ,,	Ekaterino Nikolskaia	1,195	25	1,094
,, ,,	Soyuznaia	415	16½	1,110½
,, ,,	Polikarnovka	—	17	1,127½
,, ,,	Hingan	—	22½	1,149½
,, ,,	Pompeevka	—	19½	1,169½
,, ,,	Dichun	—	21½	1,191
,, ,,	Marinskaia	41	9½	1,200½
,, 24	Raddevka	529	10½	1,211
,, ,,	Storozevka	269	25¼	1,236¾
,, ,,	Pashkova	198	13¾	1,249½
,, ,,	Sagibova	80	20¾	1,270½
,, ,,	Kasatkina	112	28½	1,299¼

Date.	Place.	Population.	Distance from place to place in versts.	Total distance in versts.
1900.				
May 25	Mikhailovskaia	174	33	1,332½
,, ,,	Innokentevskaia	304	19	1,351½
,, ,,	Skobeltsina	251	22⅝	1,374
,, ,,	Nikolskaia	211	27	1,401
,, ,,	Kupriianovka	430	26⅝	1,427⅝
,, ,,	Chesnokovskaia	567	35¼	1,463
,, 26	Poiarkova	837	13¾	1,476¼
,, ,,	Konstantinovka	951	58⅝	1,535
,, 27	Aigun	—	66⅝	1,601⅝
,, ,,	Blagoveschensk	33,000	35½	1,637½
,, 28	Verkhne Blagoveschensk	514	9½	1,646⅝
,, 29	Ignateva	708	18	1,664⅝
,, ,,	Markovo	1,228	16⅞	1,681½
,, ,,	Ekaterinovka	414	4½	1,685⅝
,, ,,	Novo Pokrovka	258	16	1,701⅝
,, ,,	Sergievka	244	3	1,704⅝
,, ,,	Bibikova	462	9	1,713⅝
,, ,,	Subotina	—	24	1,737⅝
,, ,,	Petropavloskoe	34	13⅝	1,751½
,, ,,	Busseva	379	11	1,762½
,, 30	Korsakova	297	13⅝	1,776½
,, ,,	Samadon	—	31½	1,807⅞
,, ,,	Simanova	280	17	1,824½
,, ,,	Kumarskaia	229	23½	1,847⅝
,, ,,	Alexandrovka	—	21⅛	1,869½
,, ,,	Ushakova	218	21⅛	1,890⅝
,, ,,	Koltsova	40	13½	1,904
,, ,,	Novo Voskresenskoe	350	19⅛	1,923½
,, ,,	Anosova	419	5⅛	1,929
,, ,,	Tsagaian	—	26¼	1,955¼
,, 31	Ermakova	33	23⅝	1,979
,, ,,	Kuznetsova	108	24⅛	2,003⅝
,, ,,	Torai	—	22⅝	2,026¼
,, ,,	Cherniaeva	344	26½	2,052⅝
June 1	Olgina	133	27⅛	2,080⅛
,, ,,	Vaganova	—	28⅞	2,109
,, ,,	Tolbuzina	161	25⅛	2,134⅛
,, ,,	Beketova	84	27⅞	2,162
,, ,,	Permikina	145	32	2,194
,, 2	Beitonova	213	23	2,217
,, ,,	Staro Voskresenskoe	99	18⅛	2,235½
,, ,,	Albazin	786	20⅝	2,256
,, ,,	Reinova	528	15½	2,271½
,, ,,	Orlova	156	14⅝	2,286
,, 3	Elninskaia	—	24⅛	2,310⅛
,, ,,	Svirbeeva	207	25½	2,336½
,, 4	Sgibneva	75	33⅝	2,370
,, ,,	Ignashina	124	27½	2,397½
,, ,,	Amazar	61	32⅛	2,430
,, 5	Pokrovskaia	376	31	2,461

Date.	Place.	Population.	Distance from place to place in versts.	Total distance in versts.
1900.				
June 5	Ust Streelka	65	12⅜	2,473⅜
,, ,,	Utesnaia	—	21	2,494⅜
,, 6	Povorotnaia	—	28⅝	2,523
,, ,,	Karachanskaia	—	24	2,547
,, ,,	Anikino	149	26	2,573
,, 7	Chasovaia	—	30	2,603
,, ,,	Sobolinaia	—	21	2,624
,, ,,	Voskresenskaia	—	21	2,645
,, ,,	Mosherdinskaia	102	8¼	2,653¼
,, ,,	Gorbitza	505	19¾	2,673
,, 8	Ust Chernaia	161	22½	2,695½
,, ,,	Nishne Kularskaia	280	10½	2,706
,, ,,	Verkhne Kularskaia	535	4¼	2,710¼
,, ,,	Lunzankina	83	7½	2,717¾
,, ,,	Ust Kara	606	10¼	2,728
,, 9	Shilkino	957	17½	2,745½
,, ,,	Ulegichana	105	9¼	2,755
,, ,,	Chalbugina	207	4½	2,759½
,, ,,	Botovskaia	943	9½	2,769
,, ,,	Mangidana	317	4	2,773
,, ,,	Uktyechina	308	18	2,791
,, 10	Firsova	254	9½	2,800½
,, ,,	Eraulskaia	209	4¼	2,804¾
,, ,,	Lomova	612	5½	2,810¼
,, ,,	Molodova	717	11	2,821¼
,, ,,	Farkova	290	3½	2,824¾
,, ,,	Stretensk	8,000	10	2,834¾
,, 11	Baian	Railway Station.	32	2,866⅜
,, ,,	Baiankino	,,	27	2,893⅜
,, ,,	Nerchinsk	,,	23	2,916⅜
,, ,,	Shilka	,,	44	2,960⅜
,, ,,	Onon	,,	23	2,983⅜
,, ,,	Zubarevo	,,	40	3,023⅜
,, ,,	Urulga	,,	37	3,060⅜
,, ,,	Kaidalovo	,,	27	3,087⅜
,, ,,	Karymskaia	,,	13	3,100⅜
,, ,,	Makkavyevo	,,	38	3,138⅜
,, ,,	Kruchina	,,	21	3,159⅜
,, 12	Chita	,,	34	3,193⅜
,, ,,	Ingoda	,,	36	3,229⅜
,, ,,	Yablonovaia	,,	35	3,264⅜
,, ,,	Sokhondo	,,	22	3,286⅜
,, ,,	Mogzon	,,	39	3,325⅜
,, ,,	Taidut	,,	39	3,364⅜
,, ,,	Khushenga	,,	40	3,404⅜
,, ,,	Khilok	,,	35	3,439⅜
,, ,,	Bada	,,	47	3,486⅜
,, ,,	Tolbaga	,,	44	3,530⅜
,, ,,	Tarbagatai	,,	18	3,548⅜

Date.	Place.	—	Distance from place to place in versts.	Total distance in versts.
1900.				
June 13	Petrovskii Zavod . .	Railway Station.	31	3,579½
„ „	Kisha	„	18	3,597½
„ „	Gorkhon	„	14	3,611½
„ „	Ilka	„	27	3,638½
„ „	Zaigraevo . . .	„	22	3,660½
„ „	Onokhoi	„	20	3,680½
„ „	Verkhne-Udinsk . .	„	33	3,713½
„ „	Tataurovo . . .	„	36	3,749½
„ „	Selenga	„	39	3,788½
„ „	Posolskaia . . .	„	35	3,823½
„ „	Mysovaia . . .	„	44	3,867½
„ „	Lake Baikal (wharf) .	—	2½	3,870



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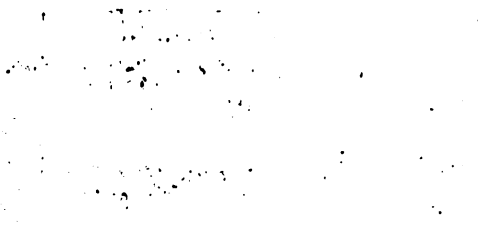

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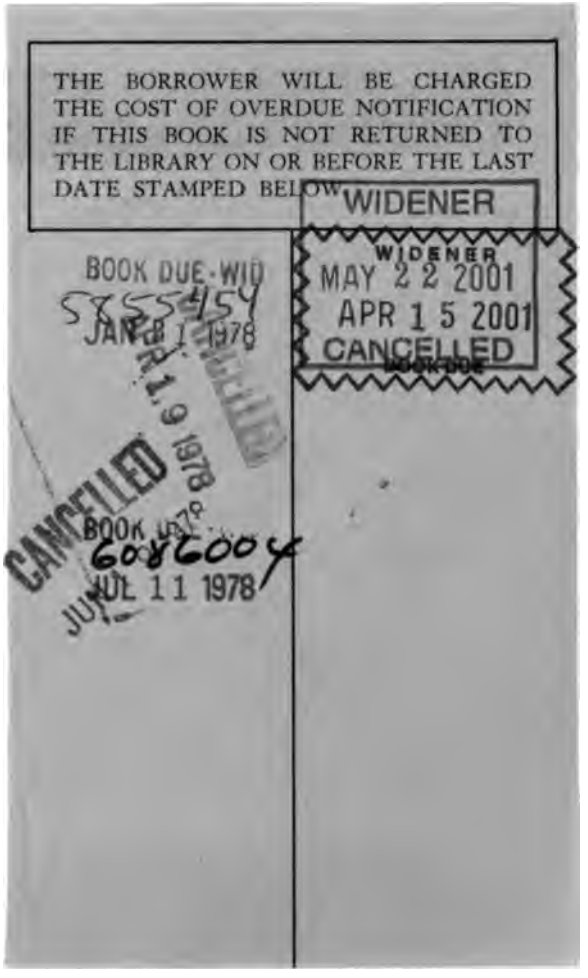
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